ThinkStation

Personal Systems Reference
Lenovo® ThinkStation® Workstations

October 2010 - Version 386

E20 S20 C20 D20

ThinkStation 20 Series

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ThinkStation

Lenovo ThinkStation E20
with Intel HD Graphics

Lenovo ThinkStation E20
with ThinkVision® L2440p (4420HB2)

Lenovo ThinkStation E20

Lenovo ThinkStation Graphics Card Option
NVIDIA® Quadro® NVS 295 (45K1669)

Lenovo ThinkStation Graphics Card Option
NVIDIA Quadro FX 380 (45K1670)

Lenovo ThinkStation Graphics Card Option
NVIDIA Quadro FX 580 (45K1671)

ThinkStation® E20 (4222) - TopSeller (Windows 7)

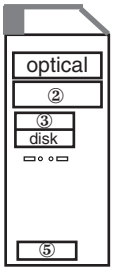
Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	ECC memory	Disk(s)	Disk size	Pre-conf RAID	SATA optical	1394 adptr	Graphics adapter(s)	ENERGY STAR 5.0	Win7 preload	Global	Avail date
4222-35U	4x5	G6950	2.80	2	1x2GB	1333MHz	No	1x250GB[2]	3.5"	No	DVD±RW	No	FX380	ES50	Pro64	No	Feb 10
4222-36U	4x5	i3-530	2.93	2	2x2GB	1333MHz	No	1x500GB	3.5"	No	DVD±RW	No	FX380	ES50	Pro64	No	Feb 10
4222-37U	4x5	i5-650	3.20	2	2x2GB	1333MHz	No	1x500GB	3.5"	No	DVD±RW	No	FX580	ES50	Pro64	No	Feb 10

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***True workstation-level performance at incredibly low price point***
- ***High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support***
- ***These small and medium business (SMB) models are part of the US TopSeller™ Program***
- ***These models have a 3-year limited warranty[1]***
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	**Intel Pentium® Processor G6950** with **dual-core**, Intel 64, Virtualization Technology, integrated 1066MHz dual-channel DDR3 memory controller, and 3MB cache or **Intel Core™ i3 Processor i3-530** with **dual-core**, Intel 64, Hyper-Threading Technology, Virtualization Technology, integrated 1333MHz dual-channel DDR3 memory controller, and 4MB cache or **Intel Core i5 Processor i5-650** with **dual-core**, Intel 64, Hyper-Threading Technology, Turbo Boost Technology (up to 3.46GHz at max turbo mode), Virtualization Technology, TXT, integrated 1333MHz dual-channel DDR3 memory controller, and 4MB cache
Implementation	Processor in LGA1156 socket, up to one processor
Memory	**2GB** or **4GB** std, 8GB max*, **UDIMM**, **PC3-10600 1333MHz DDR3****, **Non-ECC***** , four 240-pin DIMM sockets * Maximum memory is 16GB for ECC models and 8GB for Non-ECC models ** System automatically clocks down for processors with 1066MHz DDR3 memory controller *** ECC and non-ECC DIMMs cannot be mixed
Graphics	*Some:* **NVIDIA® Quadro® FX 380**, PCI Express® (PCIe) x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 580**, PCIe x16 adapter, 512MB, two DisplayPort™, one dual-link DVI-I***, 40W *** Only two display connectors are active at a time
Media reader	25-in-1 media reader, internal USB 2.0
SATA disk(s)	**250GB** or **500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel 3450 Chipset**, Platform Controller Hub (PCH) for PCI, ethernet, and USB, SMSC® SCH5147 Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82578DM
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black, Lenovo® logo
Mouse	Optical Wheel Mouse (USB connector), black, Lenovo logo
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified
Cooling	4 fans (power supply, CPU, rear, front)
Rack mount	Rack shelf support

Tower

- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 24.7 lb (11.2kg) max configuration
- 32-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Recessed power button



Bay ①	5.25",	1.6" high, access,	std optical
Bay ②	5.25",	1.6" high, access,	open
Bay ③	3.5",	1" high, access,	media reader
Bay ④	3.5",	1" high, internal,	std disk
Bay ⑤	3.5",	1" high, internal,	opt disk

Slot 1: half-length,full-height, PCIe 2.0 x16 (75w max)
Slot 2: half-length,full-height, PCIe 2.0 x1
Slot 3: half-length,full-height, 32-bit PCI 2.3
Slot 4: half-length,full-height, 32-bit PCI 2.3

SECURITY

- Security chip (see information on left)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
ENERGY STAR® 5.0-compliant

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage Toolbox
- Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Adobe Flash® Player
- Microsoft Office 2010 preloaded; purchase product key to activate
- Corel DVD MovieFactory® (DVD±RW)

Accessories

1GB PC3-10600 DDR3 Non-ECC UDIMM	57Y4389
2GB PC3-10600 DDR3 Non-ECC UDIMM	57Y4390
250GB SATA 3.0Gb/s Disk (7200 rpm)	41N3015
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
NVIDIA Quadro 256MB NVS 295	45K1669
NVIDIA Quadro 512MB NVS 450	57Y4398
NVIDIA Quadro 256MB FX 380	45K1670
NVIDIA Quadro 512MB FX 580	45K1671

More accessories on O-CAD sheet

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/**thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)[7]**
  - **Post warranty maintenance services**
- **24 hour x 7 day[14] toll-free support during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US models announced January 19, 2010

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ThinkStation® E20 (4222) - TopSeller (Windows 7) - August 2010

Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	ECC memory	Disk(s)	Disk size	Pre-conf RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	ENERGY STAR 5.0	Win7 preload	Global	Avail date
4222-66U	4x5	i3-530	2.93	2	1x2GB	1333MHz	No	1x250GB[2]	3.5"	No	DVD±RW	No		ES50	Pro64	No	Aug 10
4222-67U	4x5	i3-540	3.06	2	2x2GB	1333MHz	No	1x500GB	3.5"	No	DVD±RW	No	FX580	ES50	Pro64	No	Aug 10
4222-68U	4x5	i5-650	3.20	2	2x2GB	1333MHz	No	1x500GB	3.5"	No	DVD±RW	No	FX1800	ES50	Pro64	No	Aug 10
4222-69U	4x5	i5-660	3.33	2	2x2GB	1333MHz	No	1x500GB	3.5"	No	DVD±RW	No		ES50	Pro64	No	Aug 10

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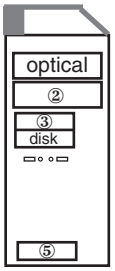
- ***These models have a 3-year limited warranty[1]***
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	**Intel Core™ i3 Processor i3-530** or **i3-540** with **dual-core**, Intel 64, Hyper-Threading Technology, Virtualization Technology, integrated 1333MHz dual-channel DDR3 memory controller, and 4MB cache or **Intel Core i5 Processor i5-650** or **i5-660** with **dual-core**, Intel 64, Hyper-Threading Technology, Turbo Boost Technology, Virtualization Technology, TXT, integrated 1333MHz dual-channel DDR3 memory controller, and 4MB cache
Implementation	Processor in LGA1156 socket, up to one processor
Memory	**2GB** or **4GB** std, 8GB max, **UDIMM**, **PC3-10600 1333MHz DDR3**, **Non-ECC**, four 240-pin DIMM sockets
Graphics	*Some:* **NVIDIA® Quadro® FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I*, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I*, 59W * Only two display connectors are active at a time
Media reader	None
SATA disk(s)	**250GB** or **500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel 3450 Chipset**, Platform Controller Hub (PCH) for PCI, ethernet, and USB, SMSC® SCH5147 Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82578DM
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black, Lenovo® logo
Mouse	Optical Wheel Mouse (USB connector), black, Lenovo logo
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified
Cooling	4 fans (power supply, CPU, rear, front)
Rack mount	Rack shelf support

Tower



- Raven black color; metal case
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- 32-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Recessed power button

Bay ①	5.25",	1.6" high, access,	std optical
Bay ②	5.25",	1.6" high, access,	open
Bay ③	3.5",	1" high, access,	open (media reader)
Bay ④	3.5",	1" high, internal,	std disk
Bay ⑤	3.5",	1" high, internal,	opt disk

Slot 1: half-length,full-height, PCIe 2.0 x16 (75w max)
Slot 2: half-length,full-height, PCIe 2.0 x1
Slot 3: half-length,full-height, 32-bit PCI 2.3
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500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
NVIDIA Quadro 256MB NVS 295	45K1669
NVIDIA Quadro 512MB NVS 450	57Y4398
NVIDIA Quadro 256MB FX 380	45K1670
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- **3-year parts and labor**
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  - **Onsite service upgrade options (in eligible locations)[7]**
  - **Post warranty maintenance services**
- **24 hour x 7 day[14] toll-free support during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US models announced August 3, 2010

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ThinkStation® E20 (4220) - Windows 7

Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	ECC memory	Disk(s)	Disk size	Pre-conf RAID	SATA optical	1394 adptr	Graphics adapter(s)	ENERGY STAR 5.0	Win7 preload	Global GMP (G) (P)	Avail date
4220-34U	4x5	i3-530	2.93	2	2x2GB	1333MHz		1x500GB[2]	3.5"	No	DVD±RW	No	FX380	ES50	Pro64	No	Feb 10
4220-35U	4x5	G6950	2.80	2	1x2GB	1333MHz		1x500GB	3.5"	No	DVD±RW	No	FX380	ES50	Pro64	No	Feb 10
4220-36U	4x5	X3430	2.40	4	2x2GB	1333MHz	ECC	1x500GB	3.5"	No	DVD±RW	No	FX580	ES50	Pro64	No	Feb 10
4220-37U	4x5	X3440	2.53	4	2x2GB	1333MHz	ECC	1x500GB	3.5"	No	DVD±RW	No	FX1800	ES50	Pro64	No	Feb 10

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Processor	**Intel Pentium® Processor G6950** with **dual-core**, Intel 64, Virtualization Technology, integrated 1066MHz dual-channel DDR3 memory controller, and 3MB cache or **Intel Core™ i3 Processor i3-530** with **dual-core**, Intel 64, Hyper-Threading Technology, Virtualization Technology, integrated 1333MHz dual-channel DDR3 memory controller, and 4MB cache or **Intel Xeon® Processor X3430** with **quad-core**, Intel 64, Virtualization Technology, TXT, Turbo Boost Technology (up to 2.80GHz at max turbo mode), integrated 1333MHz dual-channel DDR3 memory controller, and 8MB cache or **Intel Xeon Processor X3440** with **quad-core**, Intel 64, Hyper-Threading Technology, Virtualization Technology, TXT, Turbo Boost Technology (up to 2.93GHz at max turbo mode), integrated 1333MHz dual-channel DDR3 memory controller, and 8MB cache
Implementation	Processor in LGA1156 socket, up to one processor
Memory	**2GB** or **4GB** std, **PC3-10600 1333MHz DDR3***, **UDIMM**, four 240-pin DIMM sockets *34U/35U:* 8GB max**, **Non-ECC***** *36U/37U:* 16GB max, **ECC** * System automatically clocks down for processors with 1066MHz DDR3 memory controller ** Max memory is 16GB for ECC models and 8GB for Non-ECC models *** ECC and non-ECC DIMMs cannot be mixed
Graphics	*Some:* **NVIDIA® Quadro® FX 380**, PCI Express® (PCIe) x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 580**, PCIe x16 adapter, 512MB, two DisplayPort™, one dual-link DVI-I***, 40W *Some:* **NVIDIA® Quadro® FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I***, 59W *** Only two display connectors are active at a time
Media reader	25-in-1 media reader, internal USB 2.0
SATA disk(s)	**500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel 3450 Chipset**, Platform Controller Hub (PCH) for PCI, ethernet, and USB, SMSC® SCH5147 Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82578DM
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black, Lenovo® logo
Mouse	Optical Wheel Mouse (USB connector), black, Lenovo logo
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified
Cooling	4 fans (power supply, CPU, rear, front)
Rack mount	Rack shelf support

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- Microsoft Office 2010 preloaded; purchase product key to activate

Accessories

2GB PC3-10600 DDR3 Non-ECC UDIMM	57Y4390
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918

More accessories on O-CAD sheet

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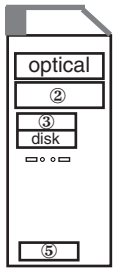

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Bay ④	3.5",	1" high, internal,	std disk
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LIMITED WARRANTY[1]

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See footnotes for important warranty information
US models announced January 19, 2010

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ThinkStation® E20 (4220) - Windows 7 (August 2010)

Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	ECC memory	Disk(s)	Disk size	Pre-conf RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	ENERGY STAR 5.0	Win7 preload	Global	Avail date
4220-82U	4x5	X3440	2.53	4	2x2GB	1333MHz	ECC	1x500GB[2]	3.5"	No	DVD±RW	Media	FX580	ES50	Pro64	Global	Aug 10
4220-83U	4x5	X3440	2.53	4	2x2GB	1333MHz	ECC	1x500GB	3.5"	No	DVD±RW	Media	FX1800	ES50	Pro64	Global	Aug 10
4220-84U	4x5	X3470	2.93	4	2x2GB	1333MHz	ECC	1x500GB	3.5"	No	DVD±RW	Media	FX1800	ES50	Pro64	Global	Aug 10
4220-85U	4x5	i5-650	3.20	2	2x2GB	1333MHz	ECC	1x500GB	3.5"	No	DVD±RW	Media	FX580	ES50	Pro64	Global	Aug 10
4220-86U	4x5	i5-650	3.20	2	2x2GB	1333MHz	ECC	1x500GB	3.5"	No	DVD±RW	Media	FX1800	ES50	Pro64	Global	Aug 10
4220-87U	4x5	i5-670	3.46	2	2x2GB	1333MHz	ECC	1x500GB	3.5"	No	DVD±RW	Media	FX1800	ES50	Pro64	Global	Aug 10
4220-88U	4x5	i5-650	3.20	2	2x2GB	1333MHz	ECC	1x500GB	3.5"	No	DVD±RW	Media	Intel HD	ES50	Pro64	Global	Aug 10

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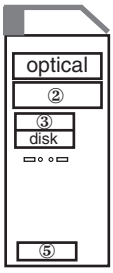
Implementation	Processor in LGA1156 socket, up to one processor
Memory	**4GB** std, 16GB max, **PC3-10600 1333MHz DDR3***, **UDIMM**, **ECC** four 240-pin DIMM sockets
Graphics	*Some:* **Intel HD Graphics** in processor, one analog VGA DB-15 connector and one DisplayPort connector on rear, supports dual independent display *Some:* **NVIDIA® Quadro® FX 580**, PCIe x16 adapter, 512MB, two DisplayPort™, one dual-link DVI-I*, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I*, 59W *** Only two display connectors are active at a time
Media reader	25-in-1 media reader, internal USB 2.0
SATA disk(s)	**500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA connectors for disks, two SATA connectors for opticals

Tower



- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 24.7 lb (11.2kg) max configuration
- 32-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support
- Recessed power button

Bay ①	5.25",	1.6" high, access,	std optical
Bay ②	5.25",	1.6" high, access,	open
Bay ③	3.5",	1" high, access,	media reader
Bay ④	3.5",	1" high, internal,	std disk
Bay ⑤	3.5",	1" high, internal,	opt disk

Slot 1: half-length,full-height, PCIe 2.0 x16 (75w max)
Slot 2: half-length,full-height, PCIe 2.0 x1
Slot 3: half-length,full-height, 32-bit PCI 2.3
Slot 4: half-length,full-height, 32-bit PCI 2.3

Chipset	**Intel 3450 Chipset**, Platform Controller Hub (PCH) for PCI, ethernet, and USB, SMSC® SCH5147 Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in) *Intel HD model(s):* one analog VGA DB-15 connector, one DisplayPort connector
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82578DM
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black, Lenovo® logo
Mouse	Optical Wheel Mouse (USB connector), black, Lenovo logo
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified
Cooling	4 fans (power supply, CPU, rear, front)
Rack mount	Rack shelf support

SECURITY

- Security chip (see information on left)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
ENERGY STAR® 5.0-compliant

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage Toolbox
- Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Adobe Flash® Player
- Microsoft Office 2010 preloaded; purchase product key to activate
- Corel® Burn.Now™ (DVD±RW)
- Corel DVD MovieFactory® (DVD±RW)

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
250GB SATA 3.0Gb/s Disk (7200 rpm)	41N3015
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
NVIDIA Quadro 256MB NVS 295	45K1669
NVIDIA Quadro 512MB NVS 450	57Y4398
NVIDIA Quadro 256MB FX 380	45K1670
NVIDIA Quadro 512MB FX 580	45K1671

More accessories on O-CAD sheet

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com**/thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)**[7]
  - **Post warranty maintenance services**
- **24 hour x 7 day**[14] **toll-free support during the warranty period**[1] **via 800-426-7378**

See footnotes for important warranty information
US models announced August 3, 2010

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ThinkStation® E20 (4220) - Windows XP

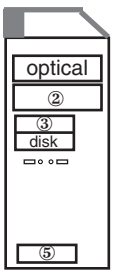
Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	ECC memory	Disk(s)	Disk size	Pre-conf RAID	SATA optical	1394 adptr	Graphics adapter(s)	ENERGY STAR 5.0	Preload	Global	Avail date
4220-65U	4x5	X3450	2.66	4	1x2GB	1333MHz	ECC	1x500GB[2]	3.5"	No	DVD±RW	1394	FX580	ES50	XP Pro	No	May 10
4220-66U	4x5	i5-650	3.20	2	1x2GB	1333MHz	ECC	1x500GB	3.5"	No	DVD±RW	1394	FX380	ES50	XP Pro	No	May 10
4220-67U	4x5	i5-670	3.46	2	1x2GB	1333MHz	ECC	1x500GB	3.5"	No	DVD±RW	1394	FX1800	ES50	XP Pro	No	May 10

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***True workstation-level performance at incredibly low price point***
- ***High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support***
- ***These models have a 3-year limited warranty***[1]

Processor	**Intel Core™ i5 Processor i5-650** or **i5-670** with **dual-core**, Intel 64, Hyper-Threading Technology, Virtualization Technology, TXT, Turbo Boost Technology, integrated 1333MHz dual-channel DDR3 memory controller, and 4MB cache or **Intel Xeon® Processor X3450** with **quad-core**, Intel 64, Hyper-Threading Technology, Virtualization Technology, TXT, Turbo Boost Technology, integrated 1333MHz dual-channel DDR3 memory controller, and 8MB cache
Implementation	Processor in LGA1156 socket, up to one processor
Memory	**2GB** std, 16GB max, **PC3-10600 1333MHz DDR3**, **UDIMM**, **ECC** four 240-pin DIMM sockets
Graphics	*Some:* **NVIDIA® Quadro® FX 380**, PCI Express® (PCIe) x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 580**, PCIe x16 adapter, 512MB, two DisplayPort™, one dual-link DVI-I*, 40W *Some:* **NVIDIA® Quadro® FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I*, 59W * Only two display connectors are active at a time
Media reader	None
SATA disk(s)	**500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel 3450 Chipset**, Platform Controller Hub (PCH) for PCI, ethernet, and USB, SMSC® SCH5147 Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
IEEE 1394 adptr	FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82578DM
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black, Lenovo® logo
Mouse	Optical Wheel Mouse (USB connector), black, Lenovo logo
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified
Cooling	4 fans (power supply, CPU, rear, front)
Rack mount	Rack shelf support

Tower

- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 24.7 lb (11.2kg) max configuration
- 32-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support
- Recessed power button



Bay ①	5.25",	1.6" high, access,	std optical
Bay ②	5.25",	1.6" high, access,	open
Bay ③	3.5",	1" high, access,	open (media reader)
Bay ④	3.5",	1" high, internal,	std disk
Bay ⑤	3.5",	1" high, internal,	opt disk

Slot 1: half-length,full-height, PCIe 2.0 x16 (75w max)
Slot 2: half-length,full-height, PCIe 2.0 x1
Slot 3: half-length,full-height, 32-bit PCI 2.3
Slot 4: half-length,full-height, 32-bit PCI 2.3

SECURITY

- Security chip (see information on left)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
ENERGY STAR® 5.0-compliant

Preloaded operating system[20]

- Genuine Windows® XP Professional 32-bit (preinstalled via downgrade rights in Windows 7 Professional 64-bit)

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage Toolbox
- Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Adobe Flash® Player
- Microsoft® Office 2007 Trial (60-day)
- Corel® Burn.Now™ (DVD±RW)
- Corel DVD MovieFactory® (DVD±RW)

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
250GB SATA 3.0Gb/s Disk (7200 rpm)	41N3015
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
NVIDIA Quadro 256MB NVS 295	45K1669
NVIDIA Quadro 512MB NVS 450	57Y4398
NVIDIA Quadro 256MB FX 380	45K1670
NVIDIA Quadro 512MB FX 580	45K1671

More accessories on O-CAD sheet

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts**[3]**, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com**/thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)**[7]
  - **Post warranty maintenance services**
- **24 hour x 7 day**[14] **toll-free support during the warranty period**[1] **via 800-426-7378**

See footnotes for important warranty information
US models announced May 4, 2010

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ThinkStation® E20 (4215) - TopSeller (GMP) - Windows 7

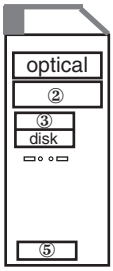
Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	ECC memory	Disk(s)	Disk size	Pre-conf RAID	SATA optical	1394 adptr	Graphics adapter(s)	ENERGY STAR 5.0	Win7 preload	Global GMP (G)	(P)	Avail date
4215-11U	4x5	i5-660	3.33	2	2x2GB	1333MHz	ECC	1x500GB[2]	3.5"	No	DVD±RW	1394	FX1800	ES50	Pro64	G	P	Feb 10

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***True workstation-level performance at incredibly low price point***
- ***High Reliability with Independent Software Vendors (ISV) certified applications and ECC memory support***
- ***This small and medium business (SMB) model is part of the US TopSeller™ Program***
- ***This model is part of the Global Models Plus (GMP) program with limited onsite service[3] 3-year limited warranty***
- ***This system is Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	**Intel Core™ i5 Processor i5-660** with **dual-core**, Intel 64, Hyper-Threading Technology, Turbo Boost Technology (up to 3.60GHz at max turbo mode), Virtualization Technology, TXT, integrated 1333MHz dual-channel DDR3 memory controller, and 4MB cache
Implementation	Processor in LGA1156 socket, up to one processor
Memory	**4GB** std, 16GB max*, **UDIMM**, **PC3-10600 1333MHz DDR3**, **ECC****, four 240-pin DIMM sockets * Max memory is 16GB for ECC models and 8GB for Non-ECC models ** ECC and non-ECC DIMMs cannot be mixed
Graphics	**NVIDIA® Quadro® FX 1800**, PCI Express® (PCIe) x16 adapter, 768MB, two DisplayPort™, one dual-link DVI-I**, 59W ** Only two display connectors are active at a time
Media reader	None
SATA disk(s)	**500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in chipset, RAID 0, 1 support, two SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel 3450 Chipset**, Platform Controller Hub (PCH) for PCI, ethernet, and USB, SMSC® SCH5147 Super I/O

Tower

- Raven black color; metal case
- 6.9"W x 17.0"D x 16.7"H (with handle)
- 175mm W x 431mm D x 425mm H
- 24.7 lb (11.2kg) max configuration
- 32-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Recessed power button



Bay ① 5.25", 1.6" high, access, std optical
Bay ② 5.25", 1.6" high, access, open
Bay ③ 3.5", 1" high, access, open (media reader)
Bay ④ 3.5", 1" high, internal, std disk
Bay ⑤ 3.5", 1" high, internal, opt disk

Slot 1: half-length,full-height, PCIe 2.0 x16 (75w max)
Slot 2: half-length,full-height, PCIe 2.0 x1
Slot 3: half-length,full-height, 32-bit PCI 2.3
Slot 4: half-length,full-height, 32-bit PCI 2.3

Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Six USB 2.0, serial (9-pin), ethernet (RJ-45), three analog audio ports (line-in, line-out, mic-in)
IEEE 1394 adptr	FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports in rear
Audio	High Definition (HD) Audio, Realtek® ALC662 codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Intel 82578DM
Security chip	STMicroelectronics ST19NP18 Trusted Platform Module (TPM), TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black, Lenovo® logo
Mouse	Optical Wheel Mouse (USB connector), black, Lenovo logo
Power supply	280 watts with variable speed fan, autosensing, 85% PSU, 80 PLUS® Bronze qualified
Cooling	4 fans (power supply, CPU, rear, front)
Rack mount	Rack shelf support

SECURITY

- Security chip (see information on left)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage Toolbox
- Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Adobe Flash® Player
- Microsoft Office 2010 preloaded; purchase product key to activate
- Corel® Burn.Now™ (DVD±RW)
- Corel DVD MovieFactory® (DVD±RW)

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
250GB SATA 3.0Gb/s Disk (7200 rpm)	41N3015
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
NVIDIA Quadro 256MB NVS 295	45K1669
NVIDIA Quadro 512MB NVS 450	57Y4398
NVIDIA Quadro 256MB FX 380	45K1670
NVIDIA Quadro 512MB FX 580	45K1671

More accessories on O-CAD sheet

Other accessories at **lenovo.com**/accessories

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
ENERGY STAR® 5.0-compliant

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com**/thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)[7]**
  - **Post warranty maintenance services**
- **24 hour x 7 day[14] toll-free support during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US model announced January 19, 2010

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ThinkStation® E20 Accessories

Partial list of accessories supported on ThinkStation E20

Memory[63]

1GB PC3-10600 DDR3 Non-ECC UDIMM	57Y4389	*ann 01/12/10*
1GB PC3-10600 DDR3 Non-ECC (25-Pack)	57Y4419	*ann 01/12/10*
2GB PC3-10600 DDR3 Non-ECC UDIMM	57Y4390	*ann 01/12/10*
2GB PC3-10600 DDR3 Non-ECC (25-Pack)	57Y4420	*ann 01/12/10*
2GB PC3-10600 DDR3 ECC UDIMM	43R2033	*ann 03/31/09*
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138	*ann 08/04/09*

[53] Mixing of ECC and non-ECC DIMMs is not supported

More information on memory and processor configuration, operation and limitation, please visit:
www.lenovo.com/support/thinkstationaccessories

Optical

DVD-ROM DL SATA1.5Gb/s 16X-48X Max[4]	41N5618	*ann 09/26/06*
Super Multi-Burner DL DVD±RW SATA1.5Gb/s	41N5620	*ann 09/26/06*
Blu-ray™ Burner SATA1.5Gb/s	45K1675	*ann 03/31/09*

Storage

250GB SATA 3.0Gb/s Disk (7200 rpm)	41N3015	*ann 01/24/06*
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990	*ann 11/06/07*
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918	*ann 08/19/08*
150GB SATA 3.0Gb/s Disk (10000 rpm) 2.5"	43R2030	*ann 03/31/09*
300GB SATA 3.0Gb/s Disk (10000 rpm) 2.5"	43R2031	*ann 03/31/09*

Removable storage

USB 2.0 Portable 320GB Hard Disk	45K1689	*ann 03/17/09*
USB 2.0 Portable 500GB Hard Disk	45K1690	*ann 05/26/09*
USB 2.0 Portable Secure 160GB Hard Disk	43R2018	*ann 11/18/08*
USB 2.0 Portable Secure 320GB Hard Disk	43R2019	*ann 11/18/08*
Lenovo® USB Portable DVD Burner	43N3264	*ann 01/05/10*

Keyboard

Preferred Pro USB Keyboard	73P5220	*ann 06/21/05*
Enhanced Performance USB Keyboard	73P2620	*ann 03/23/04*
Lenovo USB Fingerprint Keyboard	73P4730	*ann 02/22/05*
Lenovo USB Smartcard Keyboard	51J0155	*ann 03/24/09*
Ultraslim Wireless Keyboard and Mouse[52]	57Y4700	*ann 09/15/09*

More information at **www.lenovo.com/support/keyboards**

Mouse

Lenovo Optical Mouse (USB)	06P4069	*ann 05/21/03*
Lenovo ScrollPoint® Mouse (USB, Optical)	31P7405	*ann 08/27/02*
Lenovo Laser Mouse (USB)	41U3074	*ann 01/23/07*
Lenovo Wireless Laser Mouse - Black[52]	45K1696	*ann 11/25/08*
Lenovo Wireless Laser Mouse - Red/Black[52]	51J0198	*ann 11/25/08*

[52] Wireless via 2.4GHz technology using a micro-size USB receiver.

More information at **www.lenovo.com/support/mice**

Monitors

Lenovo D186 Wide 18.5" Monitor	2580AB1	*ann 01/12/10*
Lenovo L2230x Wide 21.5" Monitor	5453HB1	*ann 06/10/10*
ThinkVision® L1711p 17" Monitor	5047HB2	*ann 10/20/09*
ThinkVision L1900p 19" Monitor	4431HE1	*ann 11/11/08*
ThinkVision L1951p Wide 19" Monitor	2448HB6	*ann 10/20/09*
ThinkVision L2250p Wide 22" Monitor	2572HB6	*ann 10/20/09*
ThinkVision L2251p Wide 22" Monitor	2572HD6	*ann 10/20/09*
ThinkVision L2251x Wide 22" Monitor	2578HB6	*ann 10/20/09*
ThinkVision L2321x Wide 23" Monitor	4014HB6	*ann 06/10/10*
ThinkVision L2440p Wide 24" Monitor	4420HB2	*ann 09/17/08*

More information at **www.lenovo.com/thinkvision**

Monitor accessories[46]

ThinkVision USB Soundbar	40Y7616	*ann 08/23/05*
ThinkVision Soundbar	45K1263	*ann 09/16/08*
Kensington® MicroSaver® Cable Lock	73P2582	*ann 12/29/03*
Kensington Twin Head Cable Lock	45K1620	*ann 09/30/08*

[46] Compatible on selected Lenovo and ThinkVision monitors.

More information at **www.lenovo.com/support/monitoraccessories**

Graphics

DisplayPort to Single-link DVI-D Cable[50]	45J7915	*ann 08/05/08*
ATI™ FirePro™ 256MB V3700	51J0509	*ann 03/31/09*
ATI FirePro 512MB V5700	51J0510	*ann 03/31/09*
NVIDIA Quadro 256MB NVS 295	45K1669	*ann 04/21/09*
NVIDIA Quadro 512MB NVS 450	57Y4398	*ann 01/19/10*
NVIDIA Quadro 256MB FX 380	45K1670	*ann 03/31/09*
NVIDIA Quadro 512MB FX 580	45K1671	*ann 03/31/09*
NVIDIA Quadro 768MB FX 1800	45K1672	*ann 03/31/09*

[50] Attaches to selected DisplayPort graphics cards.

More information at **www.lenovo.com/support/graphiccards**

Security

Kensington MicroSaver Cable Lock	73P2582	*ann 12/29/03*
Kensington Twin Head Cable Lock	45K1620	*ann 09/30/08*
Lenovo Security Cable Lock	57Y4303	*ann 08/24/10*
USB Gemplus GemPC Smart Card Reader	41N3040	*ann 02/21/06*

For more information on ThinkStation accessories, please visit:
www.lenovo.com/support/accessories
www.lenovo.com/support/thinkstationaccessories
www.lenovo.com/support/security

Other accessories at **www.lenovo.com/accessories**

Accessories Guide pdf at **www.lenovo.com/accessoriesguide**

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ThinkStation

Lenovo ThinkStation C20 (left)
Lenovo ThinkStation C20x (right)

Lenovo ThinkStation C20x

Lenovo ThinkStation C20/C20x Stack

Lenovo ThinkStation Graphics Card Option
NVIDIA® Quadro® NVS 450 (57Y4398)

Multi-monitor Display with Optional Lenovo ThinkVision Monitor and Dual NVIDIA Quadro NVS 450
(Both Lenovo ThinkStation C20/C20x)

ThinkStation® C20 (4265) - TopSeller (Windows 7)

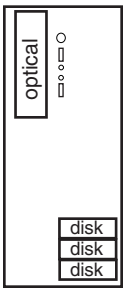
Type-model	Slot x bay	Processor(s)	GHz	Max Turbo GHz	Memory DIMMs	Memory type	Disk(s)	Disk size	Pre-conf RAID	Chassis intr switch	Graphics adapter(s)	ENERGY STAR 5.0	Global	Win7 preload	Avail date
4265-46U	6x4	1 x E5620	2.40	2.66	2 x 2GB	UDIMM	1x500GB[2] SATA	3.5"	No	Switch	1 x FX580	Pending	None	Pro 64	Jun 10
4265-54U	6x4	1 x E5620	2.40	2.66	2 x 2GB	UDIMM	1x300GB SATA	2.5"	No		1 x FX1800	Pending	None	Pro 64	Jun 10
4265-55U	6x4	1 x E5503	2.00		2 x 2GB	UDIMM	1x500GB SATA	3.5"	No		1 x FX380	Pending	None	Pro 64	Jun 10
4265-72U	6x4	1 x E5507	2.26		2 x 2GB	UDIMM	1x500GB SATA	3.5"	No		1 x FX580	Pending	None	Pro 64	Jun 10

- ***High performance workstation with smallest-possible form factor***
- ***These small and medium business (SMB) models are part of the US TopSeller™ Program***
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor(s)	Up to two processors, one processor standard, **Intel® Xeon® Processor E5503** with **dual-core**, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor E5507** with **quad-core**, 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor E5620** with **quad-core**, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	**4GB** std, 24GB max, **UDIMM**, **PC3-10600 1333MHz DDR3****, **ECC**, 6-channel capable, six 240-pin DIMM sockets*** ** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller *** Over three DIMMs requires dual processors
Graphics	*Some:* **NVIDIA® Quadro® FX 380**, PCI Express® (PCIe) x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W **** Only two display connectors are active at a time
Diskette drive	None
Media reader	None
SATA disk(s)	*Some:* **500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5" *Some:* **300GB**, SATA 3.0Gb/s, 10000 rpm, 2.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID[8] 0, 1, 5 support
Chipset	**Intel 5520 Chipset**, Intel ICH10R, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm),
Rear ports	Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, **Climate Savers® Computing Gold**, **80 PLUS® Gold** qualified
Cooling	Five fans standard (power supply, first processor, one on front, two on rear)
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

Tower

- Rack-mountable to 3U
- Raven black color; metal case
- 5.1"W x 17.5"D x 16.8"H
- 130mm W x 444mm D x 427mm H
- 40.7 lb (18.5kg) max configuration
- 24-liter
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 3.5", 1" high, internal, std disk
Bay ③ 3.5", 1" high, internal, opt disk
Bay ④ 3.5", 1" high, internal, opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 5: full-length, full-height, PCIe x16 (x4 electrical)
Slot 6: half-length, full-height, 32-bit PCI 2.3
* Adapters >75W use auxiliary power connector(s) from PSU

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock)
- Security slot (in rear for optional Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)
- *Some:* Chassis intrusion switch

Supports **ThinkVantage®** technologies

GREENGUARD® certified
RoHS-compliant
Pending: **ENERGY STAR® 5.0**-compliant

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
- Corel® WinDVD® (DVD±RW)

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2
ATI™ FirePro™ 1GB V7750	51J0511

More accessories on O-MAD sheet

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/**thinkplus/warranty
- **24x7[14] toll-free support for warranty issues during the warranty period[1] via 800-426-7378**

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ThinkStation® C20 (4262) - Windows 7

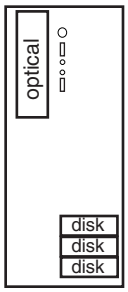
Type-model	Slot x bay	Processor(s)	GHz	Max Turbo GHz	Memory DIMMs	Memory type	Disk(s)	Disk size	Pre-conf RAID	SATA optical	Chassis intr switch	Graphics adapter(s)	Global	Win7 preload	Avail date
4262-14U	6x4	2 x X5667	3.06	3.46	6 x 2GB	UDIMM	2x128GB[2] SSD	1.8"	0	DVD±RW	None	2 x NVS450	None	Pro 64	Jun 10

- ***High performance workstation with smallest-possible form factor***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***This system is Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor(s)	Up to two processors, two processors standard, **Intel® Xeon® Processor X5667** with **quad-core**, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	**12GB** std, 24GB max, **UDIMM**, **PC3-10600 1333MHz DDR3**, **ECC**, 6-channel capable, six 240-pin DIMM sockets** ** Over three DIMMs requires dual processors
Graphics	**NVIDIA® Quadro® NVS 450**, PCIe x16 adapter, 512MB, four DisplayPort, 35W
Diskette drive	None
Media reader	None
SATA disk(s)	**128GB** Solid State Drive (SSD), SATA 3.0Gb/s, 1.8"
SATA DVD±RW	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID[8] 0, 1, 5 support
Chipset	**Intel 5520 Chipset**, Intel ICH10R, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm),
Rear ports	Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, **Climate Savers® Computing Gold**, **80 PLUS® Gold** qualified
Cooling	Five fans standard (power supply, first processor, one on front, two on rear) *Dual processors model(s):* One additional processor fan for second processor
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

Tower

- Rack-mountable to 3U
- Raven black color; metal case
- 5.1"W x 17.5"D x 16.8"H
- 130mm W x 444mm D x 427mm H
- 40.7 lb (18.5kg) max configuration
- 24-liter
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 3.5", 1" high, internal, std disk
Bay ③ 3.5", 1" high, internal, std disk
Bay ④ 3.5", 1" high, internal, opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 5: full-length, full-height, PCIe x16 (x4 electrical)
Slot 6: half-length, full-height, 32-bit PCI 2.3
* Adapters >75W use auxiliary power connector(s) from PSU

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock)
- Security slot (in rear for optional Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage Toolbox
- Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Adobe Flash® Player
- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
- Corel® WinDVD® (DVD±RW)

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2
ATI™ FirePro™ 1GB V7750	51J0511

More accessories on O-MAD sheet

Other accessories at **lenovo.com**/accessories

Supports **ThinkVantage®** technologies

GREENGUARD® certified
RoHS-compliant
Pending: **ENERGY STAR® 5.0**-compliant

LIMITED WARRANTY[1]

- **1-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com**/thinkplus/warranty
- **24x7[14] toll-free support for warranty issues during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US model announced June 15, 2010

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(MAD1-6) June 2010

ThinkStation® C20 (4263) - UDIMM (Windows 7)

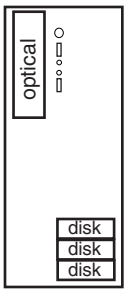
Type-model	Slot x bay	Processor(s)	GHz	Max Turbo GHz	Memory DIMMs	Disk(s)	Disk size	Pre-conf RAID	SATA optical	Chassis intr switch	Graphics adapter(s)	ENERGY STAR 5.0	Global	Win7 preload	Avail date
4263-12U	6x4	1 x E5507	2.26		3 x 2GB	1x500GB[2] SATA	3.5"	No	DVD±RW	Switch		Pending	Global	Pro 64	Jun 10
4263-22U	6x4	2 x E5640	2.66	2.93	6 x 1GB	1x300GB SATA	2.5"	No	DVD±RW	Switch	1 x NVS450	Pending	Global	Pro 64	Jun 10
4263-23U	6x4	2 x E5620	2.40	2.66	6 x 1GB	1x150GB SATA	2.5"	No	DVD	Switch	1 x NVS295	Pending	Global	Pro 64	Jun 10
4263-67U	6x4	1 x X5650	2.66	3.06	2 x 2GB	1x500GB SATA	3.5"	No	DVD±RW		1 x FX380	Pending		Pro 64	Jun 10
4263-72U	6x4	2 x X5650	2.66	3.06	6 x 2GB	1x150GB SATA	2.5"	No	DVD	Switch	2 x NVS295	Pending	Global	Pro 64	Jun 10
4263-79U	6x4	1 x E5507	2.26		2 x 2GB	1x500GB SATA	3.5"	No	DVD±RW		1 x FX380	Pending		Pro 64	Jun 10
4263-81U	6x4	1 x E5620	2.40	2.66	2 x 2GB	1x500GB SATA	3.5"	No	DVD±RW		1 x FX580	Pending		Pro 64	Jun 10
4263-82U	6x4	1 x E5630	2.53	2.80	2 x 2GB	1x500GB SATA	3.5"	No	DVD±RW		1 x FX1800	Pending		Pro 64	Jun 10

- ***High performance workstation with smallest-possible form factor***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor(s)	Up to two processors, one or two processors standard, **Intel® Xeon® Processor E5507** with **quad-core**, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor E5620**, **E5630**, or **E5640** with **quad-core**, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or **Intel Xeon Processor X5650** with **six-core**, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	**4GB**, **6GB**, or **12GB** std, 24GB max, **UDIMM**, **PC3-10600 1333MHz DDR3****, **ECC**, 6-channel capable, six 240-pin DIMM sockets*** ** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller *** Over three DIMMs requires dual processors
Graphics	*Some:* **NVIDIA® Quadro® NVS 295**, PCIe x16 adapter, 256MB, two DisplayPort, 23W *Some:* **NVIDIA Quadro NVS 450**, PCIe x16 adapter, 512MB, four DisplayPort, 35W *Some:* **NVIDIA Quadro FX 380**, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W **** Only two display connectors are active at a time
Diskette drive	None
Media reader	None
SATA disk(s)	*Some:* **500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5" *Some:* **150GB** or **300GB**, SATA 3.0Gb/s, 10000 rpm, 2.5"
SATA DVD	*Some:* DVD-ROM DL SATA 1.5Gb/s 16-48X Max[4] Drive
SATA DVD±RW	*Some:* Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID[8] 0, 1, 5 support
Chipset	**Intel 5520 Chipset**, Intel ICH10R, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm),
Rear ports	Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, **Climate Savers® Computing Gold**, **80 PLUS® Gold** qualified
Cooling	Five fans standard (power supply, first processor, one on front, two on rear) *Dual processors model(s):* One additional processor fan for second processor
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

Tower

- Rack-mountable to 3U
- Raven black color; metal case
- 5.1"W x 17.5"D x 16.8"H
- 130mm W x 444mm D x 427mm H
- 40.7 lb (18.5kg) max configuration
- 24-liter
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 3.5", 1" high, internal, std disk
Bay ③ 3.5", 1" high, internal, opt disk
Bay ④ 3.5", 1" high, internal, opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 5: full-length, full-height, PCIe x16 (x4 electrical)
Slot 6: half-length, full-height, 32-bit PCI 2.3
* Adapters >75W use auxiliary power connector(s) from PSU

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock)
- Security slot (in rear for optional Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)
- *Some:* Chassis intrusion switch

Supports **ThinkVantage®** technologies

GREENGUARD® certified
RoHS-compliant
Pending: **ENERGY STAR® 5.0**-compliant

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/**thinkplus/warranty
- **24x7[14] toll-free support for warranty issues during the warranty period[1] via 800-426-7378**

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Microsoft Office 2010 preloaded; purchase product key to activate

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138

More accessories on O-MAD sheet

Other accessories at **lenovo.com**/accessories

See footnotes for important warranty information
US models announced June 15, 2010

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ThinkStation® C20 (4263) - RDIMM (Windows 7)

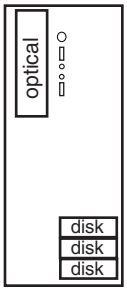
Type-model	Slot x bay	Processor(s)	GHz	Max Turbo GHz	Memory DIMMs	Disk(s)	Disk size	Pre-conf RAID	SATA optical	Chassis intr switch	Graphics adapter(s)	ENERGY STAR 5.0	Global	Win7 preload	Avail date
4263-61U	6x4	1 x E5620	2.40	2.66	2 x 2GB	1x150GB[2] SATA	2.5"	No	DVD±RW	Switch		Pending	Global	Pro 64	Jun 10
4263-63U	6x4	1 x X5650	2.66	3.06	1 x 4GB	1x150GB SATA	2.5"	No	DVD±RW	Switch		Pending	Global	Pro 64	Jun 10
4263-71U	6x4	2 x E5620	2.40	2.66	6 x 2GB	1x250GB SATA	3.5"	No	DVD	Switch	2 x NVS295	Pending	Global	Pro 64	Jun 10

- ***High performance workstation with smallest-possible form factor***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor(s)	Up to two processors, one or two processors standard, **Intel® Xeon® Processor E5620** with **quad-core**, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or **Intel Xeon Processor X5650** with **six-core**, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	**4GB** or **12GB** std, 96GB max (Pending availability of 16GB RDIMM), **RDIMM**, **PC3-10600 1333MHz DDR3****, **ECC**, 6-channel capable, six 240-pin DIMM sockets*** ** System automatically clocks down for processors with 1066MHz DDR3 memory controller *** Over three DIMMs requires dual processors
Graphics	*Some:* **NVIDIA® Quadro® NVS 295**, PCIe x16 adapter, 256MB, two DisplayPort, 23W
Diskette drive	None
Media reader	None
SATA disk(s)	*Some:* **250GB**, SATA 3.0Gb/s, 7200 rpm, 3.5" *Some:* **150GB**, SATA 3.0Gb/s, 10000 rpm, 2.5"
SATA DVD	*Some:* DVD-ROM DL SATA 1.5Gb/s 16-48X Max[4] Drive
SATA DVD±RW	*Some:* Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, one SATA connector for optical, RAID[8] 0, 1, 5 support
Chipset	**Intel 5520 Chipset**, Intel ICH10R, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm),
Rear ports	Eight USB 2.0, eSATA, one ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, **Climate Savers® Computing Gold**, **80 PLUS® Gold** qualified
Cooling	Five fans standard (power supply, first processor, one on front, two on rear) *Dual processors model(s):* One additional processor fan for second processor *4GB RDIMM model(s):* One additional memory fan for single processor model(s), Two additional memory fans for dual processors model(s)
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

Tower

- Rack-mountable to 3U
- Raven black color; metal case
- 5.1"W x 17.5"D x 16.8"H
- 130mm W x 444mm D x 427mm H
- 40.7 lb (18.5kg) max configuration
- 24-liter
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 3.5", 1" high, internal, std disk
Bay ③ 3.5", 1" high, internal, opt disk
Bay ④ 3.5", 1" high, internal, opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 5: full-length, full-height, PCIe x16 (x4 electrical)
Slot 6: half-length, full-height, 32-bit PCI 2.3
* Adapters >75W use auxiliary power connector(s) from PSU

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock)
- Security slot (in rear for optional Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- USB port disablement (front or all)
- Chassis intrusion switch

Supports **ThinkVantage®** technologies

GREENGUARD® certified
RoHS-compliant
Pending: **ENERGY STAR® 5.0**-compliant

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- Norton™ Internet Security (30 days of virus definitions)
- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio® Creator® Business Edition (DVD±RW)
- Corel® WinDVD® (DVD±RW)

Accessories

2GB PC3-10600 DDR3 ECC RDIMM	57Y4425
4GB PC3-10600 DDR3 ECC RDIMM	57Y4426
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2
ATI™ FirePro™ 1GB V7750	51J0511

More accessories on O-MAD sheet

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/**thinkplus/warranty
- **24x7[14] toll-free support for warranty issues during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US models announced June 15, 2010

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ThinkStation® C20x (4272) - TopSeller (Windows 7)

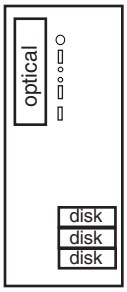
Type-model	Slot x bay	Processor(s)	GHz	Max Turbo GHz	Memory DIMMs	Memory type	Disk(s)	Disk size	Pre-conf RAID	1394 adptr	Chassis intr switch	Graphics adapter(s)	ENERGY STAR 5.0	Win7 preload	Avail date
4272-35U	6x4	1 x E5630	2.53	2.80	2 x 2GB	UDIMM	1x300GB[2] SAS	3.5"	No	1394	None	1 x FX1800	Pending	Pro 64	Jun 10

- ***High performance workstation with smallest-possible form factor***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***This small and medium business (SMB) model is part of the US TopSeller™ Program***
- ***This system is Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor(s)	Up to two processors, one processor standard, **Intel® Xeon® Processor E5630** with **quad-core**, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	**4GB** std, 48GB max, **UDIMM**, **PC3-10600 1333MHz DDR3****, **ECC**, 6-channel capable, twelve 240-pin DIMM sockets*** ** System automatically clocks down for processors with1066MHz DDR3 memory controller *** Over six DIMMs requires dual processors
Graphics	**NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W **** Only two display connectors are active at a time
Diskette drive	None
Media reader	None
SATA disk(s)	**300GB**, SAS 3.0Gb/s, 15000 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s
Disk controller	**3** SATA connectors for optical, SATA 3.0Gb/s, integrated in ICH10; **5** SATA/SAS[4] connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID[8] 0, 1, 5, integrated in Marvell® 88SE6480
Chipset	**Intel 5520 Chipset**, Intel ICH10, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	Two gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, **Climate Savers® Computing Gold**, **80 PLUS® Gold** qualified
Cooling	Five fans standard (power supply, first processor, one on front, two on rear)
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

Tower

- Rack-mountable to 3U
- Raven black color; metal case
- 5.1"W x 17.5"D x 16.8"H
- 130mm W x 444mm D x 427mm H
- 40.7 lb (18.5kg) max configuration
- 24-liter
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 3.5", 1" high, internal, std disk
Bay ③ 3.5", 1" high, internal, opt disk
Bay ④ 3.5", 1" high, internal, opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 5: full-length, full-height, PCIe x16 (x4 electrical)
Slot 6: half-length, full-height, 32-bit PCI 2.3
* Adapters >75W use auxiliary power connector(s) from PSU

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock)
- Security slot (in rear for optional Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage Toolbox
- Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Adobe Flash® Player
- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio MyDVD® (DVD±RW)
- Corel® WinDVD® (DVD±RW)

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2
ATI™ FirePro™ 1GB V7750	51J0511

More accessories on O-MAD sheet

Other accessories at **lenovo.com**/accessories

Supports **ThinkVantage®** technologies

GREENGUARD® certified
RoHS-compliant
Pending: **ENERGY STAR® 5.0**-compliant

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com**/thinkplus/warranty
- **24x7[14] toll-free support for warranty issues during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US model announced June 15, 2010

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ThinkStation® C20x (4266) - Windows 7

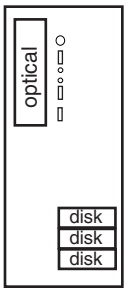
Type-model	Slot x bay	Processor(s)	GHz	Max Turbo GHz	Memory DIMMs	Memory type	Disk(s)	Disk size	Pre-conf RAID	SATA optical	1394 adptr	Graphics adapter(s)	Win7 preload	Avail date
4266-11U	6x4	2 x X5680	3.33	3.60	12 x 2GB	RDIMM	2x128GB[2] SSD	1.8"	0	Blu-ray	1394	1 x NVS450 + Tesla	Pro 64	Jun 10

- ***High performance workstation with smallest-possible form factor***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***This system is Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor(s)	Up to two processors, two processors standard, **Intel® Xeon® Processor X5680** with **six-core**, 6.4GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	**24GB** std, 192GB max (Pending availability of 16GB RDIMM), **RDIMM**, **PC3-10600 1333MHz DDR3**, **ECC**, 6-channel capable, twelve 240-pin DIMM sockets** ** Over six DIMMs requires dual processors
Graphics	**NVIDIA® Quadro® NVS 450**, PCIe x16 adapter, 512MB, four DisplayPort, 35W
GPU Computing	**NVIDIA Tesla™** C1060, PCIe x16 adapter, 4GB, IEEE 754 single-precision and double-precision floating point, 188W
Diskette drive	None
Media reader	None
SATA disk(s)	**128GB** Solid State Drive (SSD), SATA 3.0Gb/s, 1.8"
SATA DVD±RW	Blu-ray™ Burner, SATA 1.5Gb/s
Disk controller	**3** SATA connectors for optical, SATA 3.0Gb/s, integrated in ICH10; **5** SATA/SAS[4] connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID[8] 0, 1, 5, integrated in Marvell® 88SE6480
Chipset	**Intel 5520 Chipset**, Intel ICH10, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	Two gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, **Climate Savers® Computing Gold**, **80 PLUS® Gold** qualified
Cooling	Five fans standard (power supply, first processor, one on front, two on rear) *Dual processors model(s):* One additional processor fan for second processor
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

Tower

- Rack-mountable to 3U
- Raven black color; metal case
- 5.1"W x 17.5"D x 16.8"H
- 130mm W x 444mm D x 427mm H
- 40.7 lb (18.5kg) max configuration
- 24-liter
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 3.5", 1" high, internal, std disk
Bay ③ 3.5", 1" high, internal, std disk
Bay ④ 3.5", 1" high, internal, opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 5: full-length, full-height, PCIe x16 (x4 electrical)
Slot 6: half-length, full-height, 32-bit PCI 2.3
* Adapters >75W use auxiliary power connector(s) from PSU

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock)
- Security slot (in rear for optional Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage Toolbox
- Norton™ Internet Security (30 days of virus definitions)
- Adobe® Reader®
- Adobe Flash® Player
- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio MyDVD® (Blu-ray)
- Corel® WinDVD® (Blu-ray)
- Ulead® DVD MovieFactory® (Blu-ray)

Accessories

2GB PC3-10600 DDR3 ECC RDIMM	57Y4425
4GB PC3-10600 DDR3 ECC RDIMM	57Y4426
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	420HB2
ATI™ FirePro™ 1GB V7750	51J0511

More accessories on O-MAD sheet

Other accessories at **lenovo.com**/accessories

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GREENGUARD® certified
RoHS-compliant
Pending: **ENERGY STAR® 5.0**-compliant

LIMITED WARRANTY[1]

- **1-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com**/thinkplus/warranty
- **24x7[14] toll-free support for warranty issues during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US model announced June 15, 2010

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(MAD1-3) June 2010

ThinkStation® C20x (4269) - UDIMM (Windows 7)

Type-model	Slot x bay	Processor(s)	GHz	Max Turbo GHz	Memory DIMMs	Disk(s)	Disk size	Pre-conf RAID	1394 adptr	SATA optical	Chassis intr switch	Graphics adapter(s)	ENERGY STAR 5.0	Global	Avail date
4269-11U	6x4	1 x E5640	2.66	2.93	2 x 2GB	1x300GB[2] SAS	3.5"	No	1394	DVD±RW		1 x FX1800	Pending		Jun 10
4269-12U	6x4	1 x E5507	2.26		2 x 2GB	1x300GB SAS	3.5"	No	1394	DVD±RW		1 x FX1800	Pending		Jun 10
4269-13U	6x4	1 x X5650	2.66	3.06	2 x 2GB	1x300GB SAS	3.5"	No	1394	DVD±RW		1 x FX580	Pending		Jun 10
4269-17U	6x4	2 x X5667	3.06	3.46	6 x 2GB	1x450GB SAS	3.5"	No		DVD±RW	Switch		Pending	Global	Jun 10
4269-19U	6x4	2 x X5677	3.46	3.73	6 x 2GB	1x300GB SAS	3.5"	No		DVD±RW	Switch		Pending	Global	Jun 10
4269-21U	6x4	2 x X5650	2.66	3.06	6 x 2GB	1x300GB SAS	3.5"	No		DVD±RW	Switch		Pending	Global	Jun 10
4269-22U	6x4	2 x E5640	2.66	2.93	6 x 2GB	1x300GB SAS	3.5"	No		DVD±RW	Switch		Pending	Global	Jun 10

- ***High performance workstation with smallest-possible form factor***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor(s)	Up to two processors, one or two processors standard, **Intel® Xeon® Processor E5507** with **quad-core**, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor E5640** with **quad-core**, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or **Intel Xeon Processor X5667** or **X5677** with **quad-core**, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache or **Intel Xeon Processor X5650** with **six-core**, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	**4GB** or **12GB** std, 48GB max, **UDIMM**, **PC3-10600 1333MHz DDR3****, **ECC**, 6-channel capable, twelve 240-pin DIMM sockets*** ** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller *** Over six DIMMs requires dual processors
Graphics	*Some:* **NVIDIA® Quadro® FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W **** Only two display connectors are active at a time
Diskette drive	None
Media reader	None
SATA disk(s)	**300GB** or **450GB**, SAS 3.0Gb/s, 15000 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s
Disk controller	**3** SATA connectors for optical, SATA 3.0Gb/s, integrated in ICH10; **5** SATA/SAS[4] connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID[8] 0, 1, 5, integrated in Marvell® 88SE6480
Chipset	**Intel 5520 Chipset**, Intel ICH10, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	*Some:* FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	Two gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	800 watts with 80mm side-mounted variable speed fan, universal, **Climate Savers® Computing Gold**, **80 PLUS® Gold** qualified
Cooling	Five fans standard (power supply, first processor, one on front, two on rear) *Dual processors model(s):* One additional processor fan for second processor
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Microsoft Office 2010 preloaded; purchase product key to activate

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138

More accessories on O-MAD sheet

Other accessories at **lenovo.com**/accessories

Tower

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- 130mm W x 444mm D x 427mm H
- 40.7 lb (18.5kg) max configuration
- 24-liter
- Toolless side cover removal
- Toolless disk and optical drive removal
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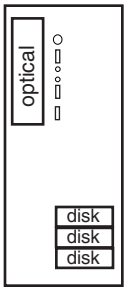

Bay ① 5.25", 1.6" high, external, std optical
Bay ② 3.5", 1" high, internal, std disk
Bay ③ 3.5", 1" high, internal, opt disk
Bay ④ 3.5", 1" high, internal, opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
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- Security slot (in rear for optional Kensington® Microsaver® cable)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse
- Serial port I/O control
- USB port disablement (front or all)
- *Some:* Chassis intrusion switch

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GREENGUARD® certified
RoHS-compliant
Pending: **ENERGY STAR® 5.0**-compliant

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
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- **24x7[14] toll-free support for warranty issues during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US models announced June 15, 2010

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ThinkStation® C20, C20x Accessories

Partial list of accessories supported on ThinkStation C20 and C20x

Processors[55]

Intel® Xeon® Quad-Core Processor E5507	0A36177	*ann 08/24/10*
Intel Xeon Quad-Core Processor E5620	0A36179	*ann 08/24/10*
Intel Xeon Quad-Core Processor E5640	0A36178	*ann 08/24/10*
Intel Xeon Six-Core Processor X5650	0A36180	*ann 08/24/10*
Intel Xeon Six-Core Processor X5660	0A36182	*ann 08/24/10*
Intel Xeon Six-Core Processor X5670	0A36181	*ann 08/24/10*

[55] Additional processor must match the existing processor

Memory[53]

2GB PC3-10600 DDR3 ECC UDIMM[54]	43R2033	*ann 03/31/09*
4GB PC3-10600 DDR3 ECC UDIMM[54]	57Y4138	*ann 08/04/09*
2GB PC3-10600 DDR3 ECC RDIMM[54]	57Y4425	*ann 04/13/10*
4GB PC3-10600 DDR3 ECC RDIMM[54]	57Y4426	*ann 04/13/10*
8GB PC3-10600 DDR3 ECC RDIMM[54]	57Y4427	*ann 04/13/10*

[53] Mixing of UDIMM and RDIMM is not supported

[54] Actual memory operating speed is the lowest installed speed, dependent on proccessor memory bus speed and PC3-8500 / PC3-10600 installed configuration

More information on memory and processor configuration, operation and limitation, please visit:
www.lenovo.com/support/thinkstationaccessories

Optical

DVD-ROM DL SATA1.5Gb/s 16X-48X Max[4]	41N5618	*ann 09/26/06*
Super Multi-Burner DL DVD±RW SATA1.5Gb/s	41N5620	*ann 09/26/06*
Blu-ray™ Burner SATA1.5Gb/s	45K1675	*ann 03/31/09*

Storage and removable storage

C20, C20x preconfigured with SATA disks:

250GB SATA 3.0Gb/s Disk (7200 rpm)	41N3015	*ann 01/24/06*
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990	*ann 11/06/07*
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918	*ann 08/19/08*
150GB SATA 3.0Gb/s Disk (10000 rpm) 2.5"	43R2030	*ann 03/31/09*
300GB SATA 3.0Gb/s Disk (10000 rpm) 2.5"	43R2031	*ann 03/31/09*

C20x preconfigured with SAS disks:

300GB SAS 3.0Gb/s Disk (15000 rpm)	43R1994	*ann 03/11/08*
450GB SAS 3.0Gb/s Disk (15000 rpm)	43N3424	*ann 02/02/10*

All:

USB 2.0 Portable 320GB Hard Disk	45K1689	*ann 03/17/09*
USB 2.0 Portable 500GB Hard Disk	45K1690	*ann 05/26/09*
USB 2.0 Portable Secure 160GB Hard Disk	43R2018	*ann 11/18/08*
USB 2.0 Portable Secure 320GB Hard Disk	43R2019	*ann 11/18/08*

Keyboard

Preferred Pro USB Keyboard	73P5220	*ann 06/21/05*
Enhanced Performance USB Keyboard	73P2620	*ann 03/23/04*
Lenovo USB Fingerprint Keyboard	73P4730	*ann 02/22/05*
Lenovo USB Smartcard Keyboard	51J0155	*ann 03/24/09*
Ultraslim Wireless Keyboard and Mouse[52]	57Y4700	*ann 09/15/09*

More information at **www.lenovo.com/support/keyboards**

Mouse

Lenovo Optical Mouse (USB)	06P4069	*ann 05/21/03*
Lenovo ScrollPoint® Mouse (USB, Optical)	31P7405	*ann 08/27/02*
Lenovo Laser Mouse (USB)	41U3074	*ann 01/23/07*
Lenovo Wireless Laser Mouse - Black[52]	45K1696	*ann 11/25/08*
Lenovo Wireless Laser Mouse - Red/Black[52]	51J0198	*ann 11/25/08*

[52] Wireless via 2.4GHz technology using a micro-size USB receiver.

More information at **www.lenovo.com/support/mice**

Monitors

Lenovo D186 Wide 18.5" Monitor	2580AB1	*ann 01/12/10*
Lenovo L2230x Wide 21.5" Monitor	5453HB1	*ann 06/10/10*
ThinkVision® L1711p 17" Monitor	5047HB2	*ann 10/20/09*
ThinkVision L1900p 19" Monitor	4431HE1	*ann 11/11/08*
ThinkVision L1951p Wide 19" Monitor	2448HB6	*ann 10/20/09*
ThinkVision L2250p Wide 22" Monitor	2572HB6	*ann 10/20/09*
ThinkVision L2251p Wide 22" Monitor	2572HD6	*ann 10/20/09*
ThinkVision L2251x Wide 22" Monitor	2578HB6	*ann 10/20/09*
ThinkVision L2321x Wide 23" Monitor	4014HB6	*ann 06/10/10*
ThinkVision L2440p Wide 24" Monitor	4420HB2	*ann 09/17/08*

More information at **www.lenovo.com/thinkvision**

Monitor accessories[46]

ThinkVision USB Soundbar	40Y7616	*ann 08/23/05*
ThinkVision Soundbar	45K1263	*ann 09/16/08*
Kensington® MicroSaver® Cable Lock	73P2582	*ann 12/29/03*
Kensington Twin Head Cable Lock	45K1620	*ann 09/30/08*

[46] Compatible on selected Lenovo and ThinkVision monitors.

More information at **www.lenovo.com/support/monitoraccessories**

Graphics

DisplayPort to Single-link DVI-D Cable[50]	45J7915	*ann 08/05/08*
ATI™ FirePro™ 256MB V3700	51J0509	*ann 03/31/09*
ATI FirePro 512MB V5700	51J0510	*ann 03/31/09*
ATI FirePro 1GB V7750	51J0511	*ann 03/31/09*
NVIDIA® Quadro® 256MB NVS 290	43R1765	*ann 12/18/07*
NVIDIA Quadro 256MB NVS 295	45K1669	*ann 04/21/09*
NVIDIA Quadro 512MB NVS 450	57Y4398	*ann 01/19/10*
NVIDIA Quadro 256MB FX 380	45K1670	*ann 03/31/09*
NVIDIA Quadro 512MB FX 580	45K1671	*ann 03/31/09*
NVIDIA Quadro 768MB FX 1800	45K1672	*ann 03/31/09*
NVIDIA Quadro 1.5GB FX 4800	45K1674	*ann 03/31/09*
NVIDIA SLI Connector with FX 4800	55Y8963	*ann 03/31/09*

[50] Attaches to selected DisplayPort graphics cards.

More information at **www.lenovo.com/support/graphiccards**

Security

Kensington MicroSaver Cable Lock	73P2582	*ann 12/29/03*
Kensington Twin Head Cable Lock	45K1620	*ann 09/30/08*
Lenovo Security Cable Lock	57Y4303	*ann 08/24/10*
USB Gemplus GemPC Smart Card Reader	41N3040	*ann 02/21/06*

Rack mount accessories

ThinkStation C-Series, D-Series Rail Kit	57Y4482	*ann 09/14/10*

For more information on ThinkStation accessories, please visit:
www.lenovo.com/support/accessories
www.lenovo.com/support/thinkstationaccessories
www.lenovo.com/support/security

Other accessories at **www.lenovo.com/accessories**

Accessories Guide pdf at **www.lenovo.com/accessoriesguide**

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ThinkStation

Lenovo ThinkStation S20

Lenovo ThinkStation S20

Lenovo ThinkStation S20

Lenovo ThinkStation S20 (left)
Lenovo ThinkStation D20 (right)

Lenovo ThinkStation Graphics Card Option
NVIDIA® Quadro® FX 380 (45K1670)

Lenovo ThinkStation Graphics Card Option
ATI™ FirePro™ V3700 (51J0509)

ThinkStation® S20 (4105) - TopSeller (Windows 7)

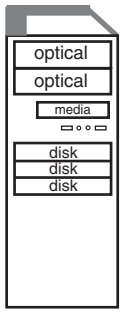
Name	Type-model	Slot x bay	Processor	GHz	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-config RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	ENERGY STAR 5.0	Win7 preload	Avail date
S20	4105-97U	5x6	W3503	2.40	2x1GB	1333MHz	1x500GB[2]	3.5"	No	DVD±RW	Media	1xFX380	No	Pending	Pro64	Oct 09
S20	4105-98U	5x6	W3505	2.53	2x1GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xFX580	No	Pending	Pro64	Oct 09
✂ **S20**	4105-99U	5x6	W3520	2.66	2x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xFX1800	No	Pending	Pro64	Oct 09

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***High performance workstation with premium graphics for specialized professionals***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC***
- ***These small and medium business (SMB) models are part of the US TopSeller™ Program***
- ***These models have a 3-year limited warranty[1]***
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	**Intel Xeon® Processor W3503** or **W3505** with **dual-core**, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Virtualization Technology, 1066MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor W3520** with **quad-core**, 4.8GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology (up to 2.93GHz at max turbo mode), 1066MHz DDR3 memory controller, and 8MB cache
Implementation	Processor uses FC-LGA8 package, one LGA1366 socket
Memory	**2GB** or **4GB** std, 24GB max, **UDIMM**, **PC3-10600 1333MHz DDR3*****, **ECC**, 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with 1066MHz DDR3 memory controller
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU *Some:* **NVIDIA® Quadro® FX 380**, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W **** Only two display connectors are active at a time
Media reader	20-in-1 media reader, internal USB 2.0
SATA disk(s)	**500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel X58 Express Chipset**, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS])
Rack mount	Rack shelf support

Tower

- Raven black color; metal case
- 6.9"W x 19.0"D x 18.8"H (with handle)
- 175mm W x 483mm D x 478mm H
- 38.5 lb (17.5kg) max configuration
- 31-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 5.25", 1.6" high, external, open
Bay ③ 3.5", 1" high, external, std media reader
Bay ④ 3.5", 1" high, internal, std disk
Bay ⑤ 3.5", 1" high, internal, opt disk
Bay ⑥ 3.5", 1" high, internal, opt disk

Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 2: full-length, full-height, PCIe 2.0 x4**
Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 4: full-length, full-height, PCIe x1
Slot 5: half-length, full-height, 32-bit PCI 2.3

** x16 mechanical

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Pending: ENERGY STAR® 5.0-compliant

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage System Update
- Norton Internet Security™ (30 days of virus definitions)
- Adobe® Reader
- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
- Corel® WinDVD® (DVD±RW)

Accessories

2GB PC3-8500 DDR3 ECC UDIMM	51J0504
2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2
NVIDIA Quadro NVS 290	43R1765
ATI™ FirePro™ 1GB V7750	51J0511

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty**
  - **Onsite service upgrade options (in eligible locations)[7]**
  - **Post warranty maintenance services**
- **24 hour x 7 day[14] toll-free support during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US models announced October 22, 2009
✂ US model withdrawn effective August 2010

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ThinkStation® S20 (4157)

Name	Type-model	Slot x bay	Processor	GHz	Memory DIMMs	Memory speed	Disk(s)	Disk size	RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	ENERGY STAR 5.0	Preload	Avail date
✂ **S20**	4157-11U	5x6	W3520	2.66	2 x 1GB	1066MHz	1 x 250GB[2]	3.5"		DVD±RW	Media	1 x FX380		ES50	Bus32	Mar 09
✂ **S20**	4157-12U	5x6	W3520	2.66	2 x 1GB	1066MHz	1 x 500GB	3.5"		DVD±RW	Media	1 x FX580			Bus32	Mar 09
✂ **S20**	4157-13U	5x6	E5502	1.86	2 x 2GB	1066MHz	2 x 150GB	2.5"	1	DVD±RW	Media	1 x FX1800	1394		Bus64	Mar 09
✂ **S20**	4157-14U	5x6	E5506	2.13	2 x 1GB	1066MHz	2 x 250GB	3.5"		DVD±RW	Media	1 x FX380	1394	ES50	Bus32	Mar 09
✂ **S20**	4157-15U	5x6	E5506	2.13	2 x 1GB	1066MHz	1 x 250GB	3.5"		DVD±RW	Media	1 x NVS290	1394		Bus32	Mar 09
✂ **S20**	4157-16U	5x6	E5506	2.13	2 x 2GB	1066MHz	2 x 500GB	3.5"	0	DVD±RW	Media	1 x FX4800		ES50	Bus64	Mar 09
✂ **S20**	4157-48U	5x6	W3540	2.93	2 x 1GB	1066MHz	1 x 250GB	3.5"		DVD	Media	1 x V3700			Bus32	Mar 09
✂ **S20**	4157-49U	5x6	E5506	2.13	4 x 1GB	1066MHz	1 x 250GB	3.5"		DVD	Media	1 x V5700			Bus64	Mar 09
✂ **S20**	4157-51U	5x6	E5540	2.53	4 x 1GB	1066MHz	2 x 300GB	2.5"	0	DVD±RW	Media	1 x V7750			Bus64	Mar 09
S20	4157-52U	5x6	E5506	2.13	3 x 1GB	1066MHz	1 x 250GB	3.5"		DVD±RW	Media	1 x FX1800			Pro64	Mar 09

Processor	**Intel® Xeon® Processor W3520** or **W3540** with **quad-core**, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 1066MHz DDR3 memory controller, and 8MB cache or **Intel Xeon Processor E5502** with **dual-core**, 4.8GT/s QPI, 800MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor E5506** with **quad-core**, 4.8GT/s QPI, 800MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor E5540** with **quad-core**, 5.86GT/s QPI, 1066MHz DDR3 memory controller, and 8MB cache
Implementation	Processor uses FC-LGA8 package, one LGA1366 socket
Memory	**2GB**, **3GB**, or **4GB** std, 24GB max, **UDIMM**, **PC3-8500 1066MHz DDR3*****, **ECC**, 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with 800MHz DDR3 memory controller
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU *Some:* **NVIDIA® Quadro® NVS 290**, PCIe x16 adapter, 256MB, two single-link DVI via DMS-59 with dual DVI-I dongle, 21W *Some:* **NVIDIA Quadro FX 380**, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W *Some:* **NVIDIA Quadro FX 4800**, PCIe x16 adapter, 1.5GB, 2 slot width, two DisplayPort, one dual-link DVI-I****, 121W *Some:* **ATI™ FirePro™ V3700**, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **ATI FirePro V5700**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 49W *Some:* **ATI FirePro V7750**, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I****, 76W **** Only two display connectors are active at a time
Media reader	20-in-1 media reader, internal USB 2.0
SATA disk(s)	*Some:* **250GB** or **500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5" *Some:* **150GB** or **300GB**, SATA 3.0Gb/s, 10000 rpm, 2.5"
SATA DVD	*Some:* DVD-ROM DL SATA 1.5Gb/s 16X-48X Max[4] Drive
SATA DVD±RW	*Some:* Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel X58 Express Chipset**, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	*Some:* FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS])
Rack mount	Rack shelf support

Preloaded operating system[20]

- *Some:* Genuine Windows® XP Professional 64-bit (preinstalled via downgrade rights in Windows Vista® Business 64-bit)
- *Some:* Genuine Windows Vista Business 32
- *Some:* Genuine Windows Vista Business 64

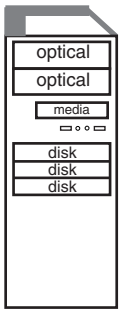
✧ *Vista models:* Vista Premium logo

Preloaded applications[5] (all OSes; only some listed)

- Rescue and Recovery™
- McAfee® VirusScan® Plus (30 days of virus definitions)
- Lenovo® System Toolbox
- Corel® WinDVD® (DVD±RW)

Tower

- Raven black color; metal case
- 6.9"W x 19.0"D x 18.8"H (with handle)
- 175mm W x 483mm D x 478mm H
- 38.5 lb (17.5kg) max configuration
- 31-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 5.25", 1.6" high, external, open
Bay ③ 3.5", 1" high, external, std media reader
Bay ④ 3.5", 1" high, internal, std disk
Bay ⑤ 3.5", 1" high, internal, std or opt disk
Bay ⑥ 3.5", 1" high, internal, opt disk

Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 2: full-length, full-height, PCIe 2.0 x4**
Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 4: full-length, full-height, PCIe x1
Slot 5: half-length, full-height, 32-bit PCI 2.3

** x16 mechanical

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Some: ENERGY STAR® 5.0-compliant
EPEAT™ Gold rating (only for ES5.0 models)

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty**
  - **Onsite service upgrade options (in eligible locations)[7]**
  - **Post warranty maintenance services**
- **24 hour x 7 day[14] toll-free support during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US models announced March 31, 2009
✂ US models withdrawn effective January 2010 or April 2010

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ThinkStation® S20 (4157) - Windows 7

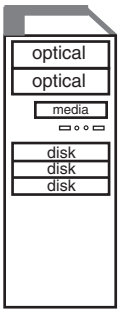
Name	Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-config RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	ENERGY STAR 5.0	Win7 preload	Avail date
S20	4157-A1U	5x6	W3503	2.40	2	2x1GB	1333MHz	1x500GB[2]	3.5"	No	DVD±RW	Media	1xFX380	None	Pending	Pro64	Oct 09
✂ **S20**	4157-A2U	5x6	W3520	2.66	4	2x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xFX1800	None	Pending	Pro64	Oct 09
S20	4157-F1U	5x6	W3530	2.80	4	2x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xFX580	None	Pending	Pro64	Jun 10

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***High performance workstation with premium graphics for specialized professionals***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC***
- ***These models have a 3-year limited warranty[1]***
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	**Intel Xeon® Processor W3503** with **dual-core**, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), 1066MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor W3520 or W3530**with **quad-core**, 4.8GT/s QPI, 1066MHz DDR3 memory controller, and 8MB cache
Implementation	Processor uses FC-LGA8 package, one LGA1366 socket
Memory	**2GB** or **4GB** std, 24GB max, **UDIMM**, **PC3-10600 1333MHz DDR3*****, **ECC**, 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with 1066MHz DDR3 memory controller
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU *Some:* **NVIDIA® Quadro® FX 380**, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W **** Only two display connectors are active at a time
Media reader	20-in-1 media reader, internal USB 2.0
SATA disk(s)	**500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel X58 Express Chipset**, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS])
Rack mount	Rack shelf support

Tower

- Raven black color; metal case
- 6.9"W x 19.0"D x 18.8"H (with handle)
- 175mm W x 483mm D x 478mm H
- 38.5 lb (17.5kg) max configuration
- 31-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 5.25", 1.6" high, external, open
Bay ③ 3.5", 1" high, external, std media reader
Bay ④ 3.5", 1" high, internal, std disk
Bay ⑤ 3.5", 1" high, internal, opt disk
Bay ⑥ 3.5", 1" high, internal, opt disk

Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 2: full-length, full-height, PCIe 2.0 x4**
Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 4: full-length, full-height, PCIe x1
Slot 5: half-length, full-height, 32-bit PCI 2.3

** x16 mechanical

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Pending: ENERGY STAR® 5.0-compliant

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage System Update
- Norton Internet Security™ (30 days of virus definitions)
- Adobe® Reader
- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
- Corel® WinDVD® (DVD±RW)

Accessories

2GB PC3-8500 DDR3 ECC UDIMM	51J0504
2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2
NVIDIA Quadro NVS 290	43R1765
NVIDIA Quadro FX 580	45K1671
ATI™ FirePro™ 1GB V7750	51J0511

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com**/thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)[7]**
  - **Post warranty maintenance services**
- **24 hour x 7 day[14] toll-free support during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
☞ US model announced June 15, 2010; previous models on October 22, 2009
✂ US model withdrawn effective August 2010

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ThinkStation® S20 (4157) - Windows 7 (March 2010)

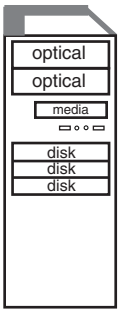
Name	Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-config RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	ENERGY STAR 5.0	Win7 preload	Avail date
S20	4157-D7U	5x6	E5507	2.26	4	1x2GB	1333MHz	1x500GB[2]	3.5"	No	DVD±RW	Media	1xV3700		Pending	Pro64	Mar 10
S20	4157-D8U	5x6	E5507	2.26	4	2x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xFX1800	1394	Pending	Pro64	Mar 10
S20	4157-D9U	5x6	W3530	2.80	4	1x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xFX380	1394	Pending	Pro64	Mar 10
S20	4157-E1U	5x6	W3530	2.80	4	1x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xFX580	1394	Pending	Pro64	Mar 10

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***High performance workstation with premium graphics for specialized professionals***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC***
- ***These models have a 3-year limited warranty[1]***
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	**Intel Xeon® Processor W3530** with **quad-core**, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology (up to 3.06GHz at max turbo mode), 1066MHz DDR3 memory controller, and 8MB cache or **Intel Xeon Processor E5507** with **quad-core**, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache
Implementation	Processor uses FC-LGA8 package, one LGA1366 socket
Memory	**2GB** or **4GB** std, 24GB max, **UDIMM**, **PC3-10600 1333MHz DDR3*****, **ECC**, 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU *Some:* **NVIDIA® Quadro® FX 380**, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W *Some:* **ATI™ FirePro™ V3700**, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W **** Only two display connectors are active at a time
Media reader	20-in-1 media reader, internal USB 2.0
SATA disk(s)	**500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel X58 Express Chipset**, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	*Some:* FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS])
Rack mount	Rack shelf support

Tower

- Raven black color; metal case
- 6.9"W x 19.0"D x 18.8"H (with handle)
- 175mm W x 483mm D x 478mm H
- 38.5 lb (17.5kg) max configuration
- 31-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support



Bay ①	5.25",	1.6" high,	external, std optical
Bay ②	5.25",	1.6" high,	external, open
Bay ③	3.5",	1" high,	external, std media reader
Bay ④	3.5",	1" high,	internal, std disk
Bay ⑤	3.5",	1" high,	internal, opt disk
Bay ⑥	3.5",	1" high,	internal, opt disk

Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 2: full-length, full-height, PCIe 2.0 x4**
Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 4: full-length, full-height, PCIe x1
Slot 5: half-length, full-height, 32-bit PCI 2.3

** x16 mechanical

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Pending: ENERGY STAR® 5.0-compliant

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage System Update
- Norton Internet Security™ (30 days of virus definitions)
- Adobe® Reader®
- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio® Creator® Business Edition (DVD±RW)
- Corel® WinDVD® (DVD±RW)

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2
NVIDIA Quadro NVS 290	43R1765
ATI FirePro 1GB V7750	51J0511

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/**thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)[7]**
  - **Post warranty maintenance services**
- **24 hour x 7 day[14] toll-free support during the warranty period[1] via 800-426-7378**

See footnotes for important warranty information
US models announced March 16, 2010

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ThinkStation® S20 (4157) - Windows XP (May 2010)

Name	Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-config RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	ENERGY STAR 5.0	Preload	Avail date
S20	4157-E3U	5x6	E5640	2.66	4	2x2GB	1333MHz	1x300GB[2]	2.5"	No	DVD±RW	Media	1xV7750	1394	Pending	XP Pro	May 10
S20	4157-E4U	5x6	W3550	3.06	4	2x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xFX1800	1394	Pending	XP Pro	May 10
S20	4157-E5U	5x6	W3680	3.33	6	2x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xFX3800	1394	Pending	XP Pro	May 10
S20	4157-E7U	5x6	E5503	2.00	2	2x2GB	1333MHz	1x150GB	2.5"	No	DVD±RW	Media	1xFX1800	1394	Pending	XP Pro	May 10
S20	4157-E8U	5x6	E5507	2.26	4	2x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xFX380		Pending	XP Pro	May 10
S20	4157-E9U	5x6	E5507	2.26	4	2x2GB	1333MHz	1x500GB	3.5"	No	DVD±RW	Media	1xV5700	1394	Pending	XP Pro	May 10

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***High performance workstation with premium graphics for specialized professionals***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC***
- ***These models have a 3-year limited warranty***[1]

Processor	**Intel Xeon® Processor W3550** with **quad-core**, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache or **Intel Xeon Processor W3680** with **six-core**, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, 1333MHz DDR3 memory controller, and 12MB cache or **Intel Xeon Processor E5503** with **dual-core**, 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor E5507** with **quad-core**, 4.8GT/s QPI, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor E5640** with **quad-core**, 5.86GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, 1066MHz DDR3 memory controller, and 12MB cache
Implementation	Processor uses FC-LGA8 package, one LGA1366 socket
Memory	**4GB** std, 24GB max, **UDIMM**, **PC3-10600 1333MHz DDR3*****, **ECC**, 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU *Some:* **NVIDIA® Quadro® FX 380**, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W *Some:* **NVIDIA Quadro FX 3800**, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I****, 108W *Some:* **ATI™ FirePro™ V5700**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 49W *Some:* **ATI FirePro V7750**, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I****, 76W **** Only two display connectors are active at a time
Media reader	20-in-1 media reader, internal USB 2.0
SATA disk(s)	*Some:* **500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5" *Some:* **150GB** or **300GB**, SATA 3.0Gb/s, 10000 rpm, 2.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel X58 Express Chipset**, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	*Some:* FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS])
Rack mount	Rack shelf support

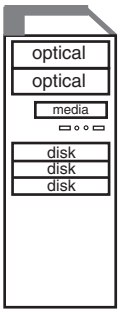
Preloaded operating system[20]

- Genuine Windows® XP Professional 32-bit***** (preinstalled via downgrade rights in Windows 7 Professional 64-bit)

***** Only 3GB of memory can be addressable by a 32-bit operating system limitation

Tower

- Raven black color; metal case
- 6.9"W x 19.0"D x 18.8"H (with handle)
- 175mm W x 483mm D x 478mm H
- 38.5 lb (17.5kg) max configuration
- 31-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 5.25", 1.6" high, external, open
Bay ③ 3.5", 1" high, external, std media reader
Bay ④ 3.5", 1" high, internal, std disk
Bay ⑤ 3.5", 1" high, internal, opt disk
Bay ⑥ 3.5", 1" high, internal, opt disk

Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 2: full-length, full-height, PCIe 2.0 x4**
Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 4: full-length, full-height, PCIe x1
Slot 5: half-length, full-height, 32-bit PCI 2.3

** x16 mechanical

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Pending: ENERGY STAR® 5.0-compliant

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/thinkplus/warranty**
  - **Onsite service upgrade options (in eligible locations)[7]**
  - **Post warranty maintenance services**
- **24 hour x 7 day[14] toll-free support during the warranty period[1] via 800-426-7378**

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ThinkStation® S20 (4157) - Global (Windows 7) - August 2010

Name	Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Disk(s)	Disk size	Pre-config RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	Win7 preload	Global	Avail date
S20	4157-G9U	5x6	W3530	2.80	4	2x2GB	1x146GB[2] SAS	3.5"	No	DVD±RW	Media		None	Pro64	Global	Aug 10
S20	4157-H1U	5x6	W3530	2.80	4	2x2GB	1x146GB SAS	3.5"	No	DVD±RW	Media	1xFX1800	None	Pro64	Global	Aug 10
S20	4157-H2U	5x6	W3550	3.06	4	3x2GB	1x146GB SAS	3.5"	No	DVD±RW	Media		None	Pro64	Global	Aug 10
S20	4157-H3U	5x6	W3550	3.06	4	3x2GB	1x146GB SAS	3.5"	No	DVD±RW	Media	1xFX1800	None	Pro64	Global	Aug 10
S20	4157-H4U	5x6	W3680	3.33	6	3x2GB	1x146GB SAS	3.5"	No	DVD±RW	Media	1xFX3800	None	Pro64	Global	Aug 10
S20	4157-H5U	5x6	W3565	3.20	4	3x2GB	1x146GB SAS	3.5"	No	DVD±RW	Media		None	Pro64	Global	Aug 10
S20	4157-H6U	5x6	W3530	2.80	4	2x2GB	1x150GB SATA	2.5"	No	DVD±RW	Media	1xFX1800	None	Pro64	Global	Aug 10
S20	4157-H7U	5x6	W3530	2.80	4	3x2GB	1x500GB SATA	3.5"	No	DVD±RW	Media	1xFX580	None	Pro64	Global	Aug 10
S20	4157-H8U	5x6	W3530	2.80	4	3x2GB	1x500GB SATA	3.5"	No	DVD±RW	Media	1xFX1800	None	Pro64	Global	Aug 10
S20	4157-H9U	5x6	W3550	3.06	4	3x2GB	1x500GB SATA	3.5"	No	DVD±RW	Media	1xFX1800	None	Pro64	Global	Aug 10

- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	**Intel® Xeon® Processor W3530**, **W3550**, or **W3565** with **quad-core**, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 8MB cache or **Intel Xeon Processor W3680** with **six-core,** 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	One LGA1366 socket
Memory	**4GB** or **6GB** std, 24GB max, **UDIMM**, **PC3-10600 1333MHz DDR3*****, **ECC**, 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with 1066MHz DDR3 memory controller
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU *Some:* **NVIDIA® Quadro® FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W *Some:* **NVIDIA Quadro FX 3800**, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I****, 108W **** Only two display connectors are active at a time
Media reader	20-in-1 media reader, internal USB 2.0
SATA disk(s)	*Some:* **500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5" *Some:* **150GB**, SATA 3.0Gb/s, 10000 rpm, 2.5"
SAS disk(s)	*Some:* **146GB**, SAS 3.0Gb/s, 15000 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
Disk controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals *SAS model(s):* Marvell® 88SE6440, PCIe x4 adapter, 4 SATA/SAS[4] connectors, SATA 3.0Gb/s, SAS 3.0Gb/s
Chipset	**Intel X58 Express Chipset**, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS])
Rack mount	Rack shelf support

Tower

- Raven black color; metal case
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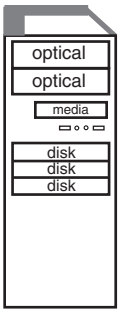

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Bay ④ 3.5", 1" high, internal, std disk
Bay ⑤ 3.5", 1" high, internal, opt disk
Bay ⑥ 3.5", 1" high, internal, opt disk

Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 2: full-length, full-height, PCIe 2.0 x4**
Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 4: full-length, full-height, PCIe x1
Slot 5: half-length, full-height, 32-bit PCI 2.3

** x16 mechanical

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Pending: ENERGY STAR® 5.0-compliant

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio® Creator® Business Edition (DVD±RW)
- Corel® WinDVD® (DVD±RW)

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2
NVIDIA Quadro NVS 290	43R1765
ATI FirePro 1GB V7750	51J0511

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts**[3]**, 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com**/thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)**[7]
  - **Post warranty maintenance services**
- **24 hour x 7 day**[14] **toll-free support during the warranty period**[1] **via 800-426-7378**

See footnotes for important warranty information
US models announced August 3, 2010

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ThinkStation® S20 (4157) - Global (May 2010)

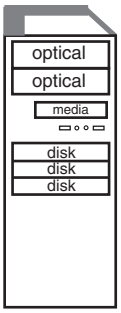
Name	Type-model	Slot x bay	Processor	GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-conf RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	ENERGY STAR 5.0	Preload	Global	Avail date
S20	4157-E6U	5x6	W3530	2.80	4	2x2GB	1333MHz	1x500GB[2]	3.5"	No	DVD±RW	Media	1xFX1800	Pending	XP Pro	Global	May 10

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***High performance workstation with premium graphics for specialized professionals***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC***
- ***This model has a 3-year limited warranty***[1]

Processor	**Intel Xeon® Processor W3530** with **quad-core**, 4.8GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, 1066MHz DDR3 memory controller, and 8MB cache
Implementation	Processor uses FC-LGA8 package, one LGA1366 socket
Memory	**4GB** std, 24GB max, **UDIMM**, **PC3-10600 1333MHz DDR3*****, **ECC**, 3-channel capable, six 240-pin DIMM sockets *** System automatically clocks down for processors with 1066MHz DDR3 memory controller
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU **NVIDIA® Quadro® FX 1800**, PCI Express® (PCIe) x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W **** Only two display connectors are active at a time
Media reader	20-in-1 media reader, internal USB 2.0
SATA disk(s)	**500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW SATA 1.5Gb/s Drive
SATA controller	Serial ATA, SATA 3.0Gb/s, integrated in ICH10R, three SATA connectors for disks, two SATA connectors for opticals
Chipset	**Intel X58 Express Chipset**, Intel I/O Controller Hub 10 RAID (ICH10R) for RAID 0, 1, 5 support, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), ethernet (RJ-45), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side-out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	One gigabit ethernet on planar, Broadcom® BCM5755
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	625 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	3 to 5 fans (power supply, CPU, rear, opt front PCI [>75W graphics], opt front [SAS])
Rack mount	Rack shelf support

Tower

- Raven black color; metal case
- 6.9"W x 19.0"D x 18.8"H (with handle)
- 175mm W x 483mm D x 478mm H
- 38.5 lb (17.5kg) max configuration
- 31-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 5.25", 1.6" high, external, open
Bay ③ 3.5", 1" high, external, std media reader
Bay ④ 3.5", 1" high, internal, std disk
Bay ⑤ 3.5", 1" high, internal, opt disk
Bay ⑥ 3.5", 1" high, internal, opt disk

Slot 1: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 2: full-length, full-height, PCIe 2.0 x4**
Slot 3: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 4: full-length, full-height, PCIe x1
Slot 5: half-length, full-height, 32-bit PCI 2.3

** x16 mechanical

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Pending: ENERGY STAR® 5.0-compliant

Preloaded operating system[20]

- Genuine Windows® XP Professional 32-bit***** (preinstalled via downgrade rights in Windows 7 Professional 64-bit)

  ***** Only 3GB of memory can be addressable by a 32-bit operating system limitation

Preloaded applications[5] (all OSes; only some listed)

- Rescue and Recovery™
- McAfee® VirusScan® Plus (30 days of virus definitions)
- Lenovo System Toolbox
- Adobe® Reader
- Microsoft Office 2007 Trial (60-day)
- Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
- Corel® WinDVD® (DVD±RW)

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2
NVIDIA Quadro NVS 290	43R1765
NVIDIA Quadro FX 580	45K1671
ATI™ FirePro™ 1GB V7750	51J0511

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com**/thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)**[7]
  - **Post warranty maintenance services**
- **24 hour x 7 day**[14] **toll-free support during the warranty period**[1] **via 800-426-7378**

See footnotes for important warranty information
US model announced May 4, 2010

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ThinkStation

Lenovo ThinkStation D20

Lenovo ThinkStation S20 (left)
Lenovo ThinkStation D20 (right)

Lenovo ThinkStation D20

Lenovo ThinkStation D20
with Lenovo ThinkVision L2440 Monitor

Lenovo ThinkStation Graphics Card Option
NVIDIA® Quadro® 1.5GB FX 4800 (45K1674)

Lenovo ThinkStation Graphics Card Option
ATI™ FirePro™ 1GB V7750 (51J0511)

ThinkStation® D20 (4155) - TopSeller

Name	Type-model	Slot x bay	Processor(s)	GHz	Cores	Memory DIMMs	Memory type	Disk(s)	Disk size	Pre-config RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	Win7 preload	Avail date
D20	4155-B6U	6x9	1xE5507	2.26	4	2x1GB	UDIMM	1x500GB[2] SATA	3.5"	No	DVD±RW	Media	1xFX580	1394	Pro64	Mar 10
D20	4155-B7U	6x9	1xE5620	2.40	4	2x2GB	UDIMM	1x500GB SATA	3.5"	No	DVD±RW	Media	1xFX1800	1394	Pro64	Mar 10
☞ **D20**	4155-E1U	6x9	1xE5620	2.40	4	2x2GB	RDIMM	1x500GB SATA	3.5"	No	DVD±RW	Media			Pro64	Sep 10

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***These small and medium business (SMB) models are part of the US TopSeller ™ Program***
- ***These models have a 3-year limited warranty***[1]
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	Up to two processors, one processor standard, **Intel Xeon® Processor E5507** with **quad-core**, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor E5620** with **quad-core**, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology (up to 2.66GHz at max turbo mode), 1066MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	*UDIMM Model (s):* **2GB** or **4GB** std, 48GB max, *RDIMM Model (s):* **4GB** std, 192GB max (pending 16GB RDIMM availability); **PC3-10600 1333MHz DDR3****, **ECC**, 6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets*** ** System automatically clocks down for processors with 800MHz or 1066MHz DDR3 memory controller *** Over six DIMMs requires dual processors
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU *Some:* **NVIDIA® Quadro® FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W **** Only two display connectors are active at a time
Diskette drive	None (use USB port)
Media reader	20-in-1 media reader
SATA disk(s)	**500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SAS disk(s)	None
SATA DVD±RW	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s
Disk Controller	3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS[4] connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID[8] 0, 1, 5, 10, integrated in Marvell® 88SE6480
Chipset	**Intel 5520 Chipset**, Intel ICH10, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	*Some:* FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	1060 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	Five fans (power supply, first processor, second processor, rear, front disk)
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage System Update
- Norton Internet Security™ (30 days of virus definitions)
- Microsoft Office 2010 preloaded; purchase product key to activate

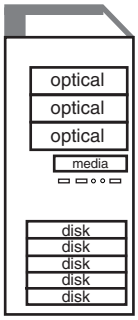
Accessories

500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2

Other accessories at **lenovo.com**/accessories

Tower

- Raven black color; metal case
- 8.3"W x 23.7"D x 19.1"H (with handle)
- 210mm W x 602mm D x 485mm H
- 60 lb (27.1kg) max configuration
- 55-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit



Bay ①	5.25", 1.6" high,	external,	std optical
Bay ②	5.25", 1.6" high,	external,	open
Bay ③	5.25", 1.6" high,	external,	open
Bay ④	3.5", 1" high,	external,	std media reader
Bay ⑤	3.5", 1" high,	internal,	std disk
Bay ⑥	3.5", 1" high,	internal,	opt disk
Bay ⑦	3.5", 1" high,	internal,	opt disk
Bay ⑧	3.5", 1" high,	internal,	opt disk
Bay ⑨	3.5", 1" high,	internal,	opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 5: full-length, full-height, PCIe x4 (x16 mechanical)
Slot 6: half-length, full-height, 32-bit PCI 2.3

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Pending: ENERGY STAR® 5.0-compliant

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/**thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)**[7]
  - **Post warranty maintenance services**
- **24 hour x 7 day**[14] **toll-free support during the warranty period**[1] **via 800-426-7378**

See footnotes for important warranty information
☞ US model announced September 21, 2010; previous models on March 16, 2010

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ThinkStation® D20 (4158) - UDIMM (March 2010)

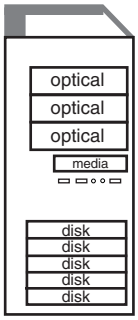
Name	Type-model	Slot x bay	Processor(s)	GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-config RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	Win7 preload	Avail date
D20	4158-A9U	6x9	1xE5503	2.00	2	2x1GB	1333MHz	1x500GB[2] SATA	3.5"	No	DVD±RW	Media	1xNVS295	1394	Pro64	Mar 10
D20	4158-B1U	6x9	1xE5507	2.26	4	2x2GB	1333MHz	1x300GB SAS	3.5"	No	DVD±RW	Media	1xFX1800	1394	Pro64	Mar 10

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***High performance workstation with premium graphics for specialized professionals***
- ***Environmentally friendly, cool, and quiet with rock solid engineering***
- ***Innovative thermal design with optimized fan placement, for a cooler, quieter, more reliable PC***
- ***These models have a 3-year limited warranty***[1]
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	Up to two processors, one processor standard, **Intel Xeon® Processor E5503** with **dual-core**, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache or **Intel Xeon Processor E5507** with **quad-core**, Intel 64, Virtualization Technology, 800MHz DDR3 memory controller, and 4MB cache
Implementation	Processor uses FC-LGA8 package, two LGA1366 sockets
Memory	**2GB** or **4GB** std, 48GB max, **UDIMM**, **PC3-10600 1333MHz DDR3****, **ECC**, 6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets*** ** System automatically clocks down for processors with 800MHz DDR3 memory controller *** Over six DIMMs requires dual processors
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU *Some:* **NVIDIA® Quadro® NVS 295**, PCIe x16 adapter, 256MB, two DisplayPort, 23W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W **** Only two display connectors are active at a time
Diskette drive	None (use USB port)
Media reader	20-in-1 media reader
SATA disk(s)	*Some:* **500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SAS disk(s)	*Some:* **300GB**, SAS 3.0Gb/s, 15000 rpm
SATA DVD±RW	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s
Disk Controller	3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS[4] connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID[8] 0, 1, 5, 10, integrated in Marvell® 88SE6480
Chipset	**Intel 5520 Chipset**, Intel ICH10, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	1060 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	Five fans (power supply, first processor, second processor, rear, front disk)
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

Tower

- Raven black color; metal case
- 8.3"W x 23.7"D x 19.1"H (with handle)
- 210mm W x 602mm D x 485mm H
- 60 lb (27.1kg) max configuration
- 55-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit



Bay ①	5.25", 1.6" high,	external,	std optical
Bay ②	5.25", 1.6" high,	external,	open
Bay ③	5.25", 1.6" high,	external,	open
Bay ④	3.5", 1" high,	external,	std media reader
Bay ⑤	3.5", 1" high,	internal,	std disk
Bay ⑥	3.5", 1" high,	internal,	opt disk
Bay ⑦	3.5", 1" high,	internal,	opt disk
Bay ⑧	3.5", 1" high,	internal,	opt disk
Bay ⑨	3.5", 1" high,	internal,	opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 5: full-length, full-height, PCIe x4 (x16 mechanical)
Slot 6: half-length, full-height, 32-bit PCI 2.3

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Pending: ENERGY STAR® 5.0-compliant

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Rescue and Recovery™
- ThinkVantage System Update
- Norton Internet Security™ (30 days of virus definitions)
- Microsoft Office 2010 preloaded; purchase product key to activate
- Roxio® Creator® Business Edition (DVD±RW)
- Roxio MyDVD® (DVD±RW)
- Corel® WinDVD® (DVD±RW)

Accessories

2GB PC3-8500 DDR3 ECC UDIMM	51J0504
2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
ThinkVision® L2440p Wide 24" Monitor	4420HB2
ATI™ FirePro™ 1GB V7750	51J0511

Other accessories at **lenovo.com**/accessories

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/**thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)**[7]
  - **Post warranty maintenance services**
- **24 hour x 7 day**[14] **toll-free support during the warranty period**[1] **via 800-426-7378**

See footnotes for important warranty information
US models announced March 16, 2010

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ThinkStation® D20 (4158) - Intel Xeon Processor 5600 Series

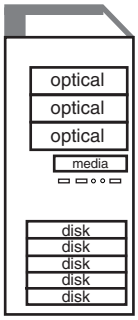
Type-model	Slot x bay	Processor(s)	Base GHz	Max GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-config RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	Global	Avail date
4158-B2U	6x9	1xE5620	2.40	2.66	4	2x2GB	1333MHz	1x500GB[2] SATA	3.5"	No	DVD±RW	Media	1xFX580	1394		Mar 10
4158-B3U	6x9	1xE5630	2.53	2.80	4	2x2GB	1333MHz	1x500GB SATA	3.5"	No	DVD±RW	Media	1xFX1800	1394		Mar 10
4158-B4U	6x9	1xE5640	2.66	2.93	4	2x2GB	1333MHz	1x300GB SAS	3.5"	No	DVD±RW	Media	1xFX1800	1394		Mar 10
4158-B5U	6x9	1xX5650	2.66	3.06	6	2x2GB	1333MHz	1x500GB SATA	3.5"	No	DVD±RW	Media	1xFX380	1394		Mar 10
4158-B6U	6x9	1xX5660	2.80	3.20	6	2x2GB	1333MHz	1x300GB SAS	3.5"	No	DVD±RW	Media	1xFX4800	1394		Mar 10
4158-B8U	6x9	1xE5640	2.66	2.93	4	2x2GB	1333MHz	1x500GB SATA	3.5"	No	DVD±RW	Media	1xFX1800	1394	Global	May 10
☞ 4158-B9U	6x9	1xX5670	2.93	3.33	6	3x2GB	1333MHz	1x300GB SAS	3.5"	No	DVD±RW	Media	1xFX4800			Jun 10

- ***Faster, more efficient architecture with the latest Intel® workstation technology***
- ***These models have a 3-year limited warranty***[1]
- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	Up to two processors, one processor standard, **Intel Xeon® Processor E5620**, **E5630**, or **E5640** with **quad-core**, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or **Intel Xeon Processor X5650**, **X5660,** or **X5670** with **six-core**, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	Processor uses FC-LGA8 package, two LGA1366 sockets
Memory	**4GB** or **6GB** std, 48GB max, **UDIMM**, **PC3-10600 1333MHz DDR3****, **ECC**, 6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets*** ** System automatically clocks down for processors with 1066MHz DDR3 memory controller *** Over six DIMMs requires dual processors
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU *Some:* **NVIDIA® Quadro® FX 380**, PCIe x16 adapter, 256MB, two dual-link DVI-I, 35W *Some:* **NVIDIA Quadro FX 580**, PCIe x16 adapter, 512MB, two DisplayPort, one dual-link DVI-I****, 40W *Some:* **NVIDIA Quadro FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W *Some:* **NVIDIA Quadro FX 4800**, PCIe x16 adapter, 1.5GB, two slot width, two DisplayPort, one dual-link DVI-I****, 121W **** Only two display connectors are active at a time

Tower

- Raven black color; metal case
- 8.3"W x 23.7"D x 19.1"H (with handle)
- 210mm W x 602mm D x 485mm H
- 60 lb (27.1kg) max configuration
- 55-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 5.25", 1.6" high, external, open
Bay ③ 5.25", 1.6" high, external, open
Bay ④ 3.5", 1" high, external, std media reader
Bay ⑤ 3.5", 1" high, internal, std disk
Bay ⑥ 3.5", 1" high, internal, opt disk
Bay ⑦ 3.5", 1" high, internal, opt disk
Bay ⑧ 3.5", 1" high, internal, opt disk
Bay ⑨ 3.5", 1" high, internal, opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 5: full-length, full-height, PCIe x4 (x16 mechanical)
Slot 6: half-length, full-height, 32-bit PCI 2.3

Diskette drive	None (use USB port)
Media reader	20-in-1 media reader
SATA disk(s)	*Some:* **500GB**, SATA 3.0Gb/s, 7200 rpm, 3.5"
SAS disk(s)	*Some:* **300GB**, SAS 3.0Gb/s, 15000 rpm
SATA DVD±RW	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s
Disk Controller	3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS[4] connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID[8] 0, 1, 5, 10, integrated in Marvell® 88SE6480
Chipset	**Intel 5520 Chipset**, Intel ICH10, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	*Some:* FireWire PCI adapter, 1394a-2000, 400Mbps, two 6-pin ports on rear
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	1060 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	Five fans (power supply, first processor, second processor, rear, front disk)
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Pending: ENERGY STAR® 5.0-compliant

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/**thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)**[7]
  - **Post warranty maintenance services**
- **24 hour x 7 day**[14] **toll-free support during the warranty period**[1] **via 800-426-7378**

Preloaded operating system[20]

- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Microsoft Office 2010 preloaded; purchase product key to activate

Accessories

2GB PC3-10600 DDR3 ECC UDIMM	43R2033
4GB PC3-10600 DDR3 ECC UDIMM	57Y4138
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990
Blu-ray™ Burner SATA 1.5Gb/s	45K1675
NVIDIA Quadro FX 4800	45K1674

Other accessories at **lenovo.com**/accessories

See footnotes for important warranty information
☞ US model announced June 15, 2010; previous models on March 16 or May 4, 2010

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ThinkStation® D20 (4158) - Global (UDIMM) - Windows 7 (August 2010)

Type-model	Slot x bay	Processor(s)	Base GHz	Cores	Memory DIMMs	Memory speed	Disk(s)	Disk size	Pre-config RAID	SATA optical	Diskette or Media reader	Graphics adapter(s)	1394 adptr	Global	Avail date
4158-D6U	6x9	2xE5620	2.40	8	4x2GB	1333MHz	1x300GB[2] SATA	2.5"		DVD±RW	Media		None	Global	Aug 10
4158-D7U	6x9	2xE5620	2.40	8	4x2GB	1333MHz	2x146GB SAS	3.5"	1	DVD±RW	Media		None	Global	Aug 10
4158-D8U	6x9	2xE5620	2.40	8	4x2GB	1333MHz	146GB+300GB SAS	3.5"		DVD±RW	Media	1xFX3800	None	Global	Aug 10
4158-D9U	6x9	2xE5640	2.66	8	4x2GB	1333MHz	1x300GB SATA	2.5"		DVD±RW	Media		None	Global	Aug 10
4158-E1U	6x9	2xX5650	2.66	12	4x2GB	1333MHz	1x300GB SATA	2.5"		DVD±RW	Media	1xFX4800	None	Global	Aug 10
4158-E2U	6x9	2xX5650	2.66	12	4x2GB	1333MHz	1x150GB SATA	2.5"		DVD±RW	Media	1xFX1800	None	Global	Aug 10
4158-E3U	6x9	2xX5660	2.80	12	4x2GB	1333MHz	1x300GB SAS	3.5"		DVD±RW	Media	1xFX4800	None	Global	Aug 10
4158-E4U	6x9	1xX5680	3.33	6	3x2GB	1333MHz	1x300GB SATA	2.5"		DVD±RW	Media	1xFX4800	None	Global	Aug 10
4158-E5U	6x9	1xX5677	3.46	4	3x2GB	1333MHz	1x300GB SATA	2.5"		DVD±RW	Media		None	Global	Aug 10

- ***These systems are Microsoft® Office 2010 Product Key Ready (O10PKR)***

Processor	Up to two processors, one or two processors standard, **Intel® Xeon® Processor E5620** or **E5640** with **quad-core**, 5.86GT/s (giga-transfers/second) QPI (QuickPath Interconnect), Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1066MHz DDR3 memory controller, and 12MB cache or **Intel Xeon Processor X5677** with **quad-core**, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache or **Intel Xeon Processor X5650**, **X5660**, or **X5680** with **six-core**, 6.4GT/s QPI, Intel 64, Hyper-Threading Technology, Virtualization Technology, Turbo Boost Technology, 1333MHz DDR3 memory controller, and 12MB cache
Implementation	Two LGA1366 sockets
Memory	**6GB** or **8GB** std, 48GB max, **UDIMM**, **PC3-10600 1333MHz DDR3****, **ECC**, 6-channel capable (3-channel per processor), twelve 240-pin DIMM sockets*** ** System automatically clocks down for processors with 1066MHz DDR3 memory controller *** Over six DIMMs requires dual processors
Graphics	Two PCI Express® x16 adapters required for quad monitor support, * Adapters >75W use auxiliary power connector(s) from PSU *Some:* **NVIDIA® Quadro® FX 1800**, PCIe x16 adapter, 768MB, two DisplayPort, one dual-link DVI-I****, 59W *Some:* **NVIDIA Quadro FX 3800**, PCIe x16 adapter, 1GB, two DisplayPort, one dual-link DVI-I****, 108W *Some:* **NVIDIA Quadro FX 4800**, PCIe x16 adapter, 1.5GB, two slot width, two DisplayPort, one dual-link DVI-I****, 121W **** Only two display connectors are active at a time
Diskette drive	None (use USB port)
Media reader	20-in-1 media reader
SATA disk(s)	*Some:* **150GB** or **300GB**, SATA 3.0Gb/s, 10000 rpm, 2.5"
SAS disk(s)	*Some:* **146GB** or **300GB**, SAS 3.0Gb/s, 15000 rpm, 3.5"
SATA DVD±RW	Super Multi-Burner DL DVD±RW, SATA 1.5Gb/s
Disk Controller	3 SATA connectors for opticals, SATA 3.0Gb/s, integrated in ICH10; 5 SATA/SAS[4] connectors for disks, SATA 3.0Gb/s, SAS 3.0Gb/s, RAID[8] 0, 1, 5, 10, integrated in Marvell® 88SE6480
Chipset	**Intel 5520 Chipset**, Intel ICH10, Winbond® W83627DHG-P Super I/O
Front ports	Two USB 2.0, microphone (3.5mm), headphone (3.5mm), FireWire 400 (IEEE 1394a)
Rear ports	Eight USB 2.0, eSATA, serial (9-pin), two ethernet (RJ-45), FireWire 400 (IEEE 1394a), six analog audio ports (line-in, mic-in, front-out, rear-out, center/sub-out, side out), Optical SPDIF digital out, Optical SPDIF digital in
IEEE 1394 adptr	None
Audio	High Definition (HD) Audio, Analog Devices AD1988A codec
Speaker	Internal speaker for business audio
Ethernet	Dual gigabit ethernet on planar, Broadcom® BCM5755 and BCM5754
Security chip	Broadcom Trusted Platform Module, TCG 1.2-compliant
Keyboard	Preferred Pro USB Keyboard (USB connector), 104-key, black
Mouse	Optical Wheel Mouse (USB connector), black
Power supply	1060 watts with 120mm bottom-mounted variable speed fan, universal, Climate Savers® Computing Bronze, 80 PLUS® Bronze qualified
Cooling	Five fans max (power supply, first processor, second processor, rear, front disk)
Rack mount	Rack shelf support or optional sliding rack mount rail kit support

Preloaded operating system[20]

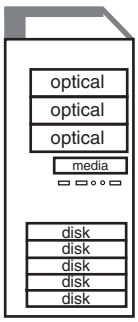
- Genuine Windows® 7 Professional 64

Preloaded applications[5] (only some listed)

- Microsoft Office 2010 preloaded; purchase product key to activate

Tower

- Raven black color; metal case
- 8.3"W x 23.7"D x 19.1"H (with handle)
- 210mm W x 602mm D x 485mm H
- 60 lb (27.1kg) max configuration
- 55-liter
- Removable handle on top front
- Toolless side cover removal
- Toolless disk and optical drive removal
- Toolless adapter retention
- Illuminated front icons
- Rack shelf support or optional rail kit



Bay ① 5.25", 1.6" high, external, std optical
Bay ② 5.25", 1.6" high, external, open
Bay ③ 5.25", 1.6" high, external, open
Bay ④ 3.5", 1" high, external, std media reader
Bay ⑤ 3.5", 1" high, internal, std disk
Bay ⑥ 3.5", 1" high, internal, std or opt disk
Bay ⑦ 3.5", 1" high, internal, opt disk
Bay ⑧ 3.5", 1" high, internal, opt disk
Bay ⑨ 3.5", 1" high, internal, opt disk

Slot 1: half-length, full-height, PCIe x1
Slot 2: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 3: full-length, full-height, 32-bit PCI 2.3
Slot 4: full-length, full-height, PCIe 2.0 x16 (75W* max)
Slot 5: full-length, full-height, PCIe x4 (x16 mechanical)
Slot 6: half-length, full-height, 32-bit PCI 2.3

SECURITY

- Security chip (see information on left)
- Side cover lock (ships with two identical keys)
- Padlock loop (in rear for opt padlock; padlock prohibits side cover removal)
- Security slot (in rear for optional Kensington® Microsaver® cable; prohibits side cover removal)
- Power-on password
- Administrator password
- Boot sequence control
- Boot without keyboard, mouse, diskette
- Serial port I/O control
- USB port disablement (front or all)

Supports ThinkVantage® technologies

GREENGUARD® certified
RoHS-compliant
Pending: ENERGY STAR® 5.0-compliant

LIMITED WARRANTY[1]

- **3-year parts and labor**
- **Customer Replaceable Unit (CRU) parts only (with limited onsite service for selected parts[3], 8 am - 5 pm, Mon - Fri coverage excluding holidays, next business day response time)**
- **ThinkPlus™ services available; see http://lenovo.com/**thinkplus/warranty
  - **Onsite service upgrade options (in eligible locations)**[7]
  - **Post warranty maintenance services**
- **24 hour x 7 day**[14] **toll-free support during the warranty period**[1] **via 800-426-7378**

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Memory Configuration for ThinkStation® S20

Memory Loading Notes on ThinkStation S20

System memory speed on ThinkStation D20 will be determined by a number of factors, including the microprocessor model and the type, speed, size (capacity), and number of DIMMs installed. Refer to the following table for information on the supported system memory speed for your ThinkStation model.

- ThinkStation S20 has six memory slots
- Memory controller is integrated in processor
- ThinkStation S20 has one processor slot
- ThinkStation S20 supports UDIMM only

Memory Speed Table for ThinkStation S20

DIMM Type and Speed	PC3-10600 UDIMM (1GB, 2GB, 4GB)		PC3-8500 UDIMM (1GB, 2GB)
Amount of DIMMs installed	1 to 3	4 to 6	1 to 6
CPU Model	Actual Memory Speed		
Intel® Xeon® E5502	800MHz	800MHz	800MHz
Intel Xeon E5503	800MHz	800MHz	800MHz
Intel Xeon E5504	800MHz	800MHz	800MHz
Intel Xeon E5506	800MHz	800MHz	800MHz
Intel Xeon E5507	800MHz	800MHz	800MHz
Intel Xeon E5520	1066MHz	1066MHz	1066MHz
Intel Xeon E5530	1066MHz	1066MHz	1066MHz
Intel Xeon E5540	1066MHz	1066MHz	1066MHz
Intel Xeon E5620	1066MHz	1066MHz	1066MHz
Intel Xeon E5630	1066MHz	1066MHz	1066MHz
Intel Xeon E5640	1066MHz	1066MHz	1066MHz
Intel Xeon X5550	1333MHz	1066MHz	1066MHz
Intel Xeon X5560	1333MHz	1066MHz	1066MHz
Intel Xeon X5570	1333MHz	1066MHz	1066MHz
Intel Xeon X5650	1333MHz	1333MHz	1066MHz
Intel Xeon X5660	1333MHz	1333MHz	1066MHz
Intel Xeon X5667	1333MHz	1333MHz	1066MHz
Intel Xeon X5670	1333MHz	1333MHz	1066MHz
Intel Xeon X5677	1333MHz	1333MHz	1066MHz
Intel Xeon X5680	1333MHz	1333MHz	1066MHz
Intel Xeon W3503	1066MHz	1066MHz	1066MHz
Intel Xeon W3505	1066MHz	1066MHz	1066MHz
Intel Xeon W3520	1066MHz	1066MHz	1066MHz
Intel Xeon W3530	1066MHz	1066MHz	1066MHz
Intel Xeon W3540	1066MHz	1066MHz	1066MHz
Intel Xeon W3550	1066MHz	1066MHz	1066MHz
Intel Xeon W3565	1066MHz	1066MHz	1066MHz
Intel Xeon W3570	1333MHz	1066MHz	1066MHz
Intel Xeon W3580	1333MHz	1066MHz	1066MHz
Intel Xeon W3680	1333MHz	1066MHz	1066MHz
Intel Xeon W5580	1333MHz	1066MHz	1066MHz
Intel Xeon W5590	1333MHz	1066MHz	1066MHz

For more information on ThinkStation S20 processor and memory accessories, please visit:

www.lenovo.com/support/accessories
www.lenovo.com/support/thinkstationaccessories

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Memory Configuration for ThinkStation® D20

Memory Loading Notes on ThinkStation D20

System memory speed on ThinkStation D20 will be determined by a number of factors, including the microprocessor model and the type, speed, size (capacity), and number of DIMMs installed. Refer to the following table for information on the supported system memory speed for your ThinkStation model.

- ThinkStation D20 has twelve memory slots; divided into two sets of 6-DIMM memory slots
- Memory controller is integrated in processor
- ThinkStation D20 has 2 processor slots, each processor control six DIMMs
- Over six DIMMs requires dual processor
- ThinkStation D20 supports UDIMM and RDIMM, mixing of UDIMM and RDIMM is not supported

Memory Speed Table for ThinkStation D20

DIMM Type and Speed	PC3-10600 UDIMM (1GB, 2GB, 4GB)		PC3-8500 UDIMM (1GB, 2GB)	PC3-10600 RDIMM (2GB, 4GB, 8GB)		PC3-8500 RDIMM (1GB, 2GB, 4GB)	PC3-8500 RDIMM (8GB)	
Amount of DIMMs installed per CPU bank	1 to 3	4 to 6	1 to 6	1 to 3	4 to 6	1 to 6	1 to 3	4 to 6
CPU Model	Actual Memory Speed							
Intel® Xeon® E5502	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz
Intel Xeon E5503	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz
Intel Xeon E5504	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz
Intel Xeon E5506	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz
Intel Xeon E5507	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz	800MHz
Intel Xeon E5520	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	800MHz
Intel Xeon E5530	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	800MHz
Intel Xeon E5540	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	800MHz
Intel Xeon E5620	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	800MHz
Intel Xeon E5630	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	800MHz
Intel Xeon E5640	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	1066MHz	800MHz
Intel Xeon X5550	1333MHz	1066MHz	1066MHz	1333MHz	1066MHz	1066MHz	1066MHz	800MHz
Intel Xeon X5560	1333MHz	1066MHz	1066MHz	1333MHz	1066MHz	1066MHz	1066MHz	800MHz
Intel Xeon X5570	1333MHz	1066MHz	1066MHz	1333MHz	1066MHz	1066MHz	1066MHz	800MHz
Intel Xeon X5650	1333MHz	1333MHz	1066MHz	1333MHz	1333MHz	1066MHz	1066MHz	800MHz
Intel Xeon X5660	1333MHz	1333MHz	1066MHz	1333MHz	1333MHz	1066MHz	1066MHz	800MHz
Intel Xeon X5667	1333MHz	1333MHz	1066MHz	1333MHz	1333MHz	1066MHz	1066MHz	800MHz
Intel Xeon X5670	1333MHz	1333MHz	1066MHz	1333MHz	1333MHz	1066MHz	1066MHz	800MHz
Intel Xeon X5677	1333MHz	1333MHz	1066MHz	1333MHz	1333MHz	1066MHz	1066MHz	800MHz
Intel Xeon X5680	1333MHz	1333MHz	1066MHz	1333MHz	1333MHz	1066MHz	1066MHz	800MHz
Intel Xeon W5580	1333MHz	1066MHz	1066MHz	1333MHz	1333MHz	1066MHz	1066MHz	800MHz
Intel Xeon W5590	1333MHz	1066MHz	1066MHz	1333MHz	1066MHz	1066MHz	1066MHz	800MHz

For more information on ThinkStation D20 processor and memory accessories, please visit:

www.lenovo.com/support/accessories
www.lenovo.com/support/thinkstationaccessories

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ThinkStation® S20, D20 Accessories

Partial list of accessories supported on ThinkStation S20 and D20

Processors[55]

D20:

Intel® Xeon® Quad-Core Processor E5506	57Y4399	*ann 10/27/09*
Intel Xeon Quad-Core Processor E5507	0A36177	*ann 08/24/10*
Intel Xeon Quad-Core Processor E5620	0A36179	*ann 08/24/10*
Intel Xeon Quad-Core Processor E5640	0A36178	*ann 08/24/10*
Intel Xeon Six-Core Processor X5650	0A36180	*ann 08/24/10*
Intel Xeon Six-Core Processor X5660	0A36182	*ann 08/24/10*
Intel Xeon Six-Core Processor X5670	0A36181	*ann 08/24/10*

[55] Additional processor must match the existing processor

Memory[53]

All:

2GB PC3-8500 DDR3 ECC UDIMM	51J0504	*ann 03/31/09*
2GB PC3-10600 DDR3 ECC UDIMM[54]	43R2033	*ann 03/31/09*
4GB PC3-10600 DDR3 ECC UDIMM[54]	57Y4138	*ann 08/04/09*

D20:

2GB PC3-10600 DDR3 ECC RDIMM[54]	57Y4425	*ann 04/13/10*
4GB PC3-10600 DDR3 ECC RDIMM[54]	57Y4426	*ann 04/13/10*
8GB PC3-10600 DDR3 ECC RDIMM[54]	57Y4427	*ann 04/13/10*

[53] Mixing of UDIMM and RDIMM is not supported

[54] Actual memory operating speed is the lowest installed speed, dependent on proccessor memory bus speed and PC3-8500 / PC3-10600 installed configuration

More information on memory and processor configuration, operation and limitation, please visit:

www.lenovo.com/support/thinkstationaccessories

Optical

DVD-ROM DL SATA1.5Gb/s 16X-48X Max[4]	41N5618	*ann 09/26/06*
Super Multi-Burner DL DVD±RW SATA1.5Gb/s	41N5620	*ann 09/26/06*
Blu-ray™ Burner SATA1.5Gb/s	45K1675	*ann 03/31/09*

Storage and removable storage

S20, D20 preconfigured with SATA disks:

250GB SATA 3.0Gb/s Disk (7200 rpm)	41N3015	*ann 01/24/06*
500GB SATA 3.0Gb/s Disk (7200 rpm)	43R1990	*ann 11/06/07*
1TB SATA 3.0Gb/s Disk (7200 rpm)	45J7918	*ann 08/19/08*
150GB SATA 3.0Gb/s Disk (10000 rpm) 2.5"	43R2030	*ann 03/31/09*
300GB SATA 3.0Gb/s Disk (10000 rpm) 2.5"	43R2031	*ann 03/31/09*

S20 preconfigured with SAS disks and the SAS controller, D20 preconfigured with SAS disks:

300GB SAS 3.0Gb/s Disk (15000 rpm)	43R1994	*ann 03/11/08*
450GB SAS 3.0Gb/s Disk (15000 rpm)	43N3424	*ann 02/02/10*

All:

USB 2.0 Portable 320GB Hard Disk	45K1689	*ann 03/17/09*
USB 2.0 Portable 500GB Hard Disk	45K1690	*ann 05/26/09*
USB 2.0 Portable Secure 160GB Hard Disk	43R2018	*ann 11/18/08*
USB 2.0 Portable Secure 320GB Hard Disk	43R2019	*ann 11/18/08*

Keyboard

Preferred Pro USB Keyboard	73P5220	*ann 06/21/05*
Enhanced Performance USB Keyboard	73P2620	*ann 03/23/04*
Lenovo USB Fingerprint Keyboard	73P4730	*ann 02/22/05*
Lenovo USB Smartcard Keyboard	51J0155	*ann 03/24/09*
Ultraslim Wireless Keyboard and Mouse[52]	57Y4700	*ann 09/15/09*

More information at **www.lenovo.com/support/keyboards**

Mouse

Lenovo Optical Mouse (USB)	06P4069	*ann 05/21/03*
Lenovo ScrollPoint® Mouse (USB, Optical)	31P7405	*ann 08/27/02*
Lenovo Laser Mouse (USB)	41U3074	*ann 01/23/07*
Lenovo Wireless Laser Mouse - Black[52]	45K1696	*ann 11/25/08*
Lenovo Wireless Laser Mouse - Red/Black[52]	51J0198	*ann 11/25/08*

[52] Wireless via 2.4GHz technology using a micro-size USB receiver.

More information at **www.lenovo.com/support/mice**

Monitors

Lenovo D186 Wide 18.5" Monitor	2580AB1	*ann 01/12/10*
Lenovo L2230x Wide 21.5" Monitor	5453HB1	*ann 06/10/10*
ThinkVision® L1711p 17" Monitor	5047HB2	*ann 10/20/09*
ThinkVision L1900p 19" Monitor	4431HE1	*ann 11/11/08*
ThinkVision L1951p Wide 19" Monitor	2448HB6	*ann 10/20/09*
ThinkVision L2250p Wide 22" Monitor	2572HB6	*ann 10/20/09*
ThinkVision L2251p Wide 22" Monitor	2572HD6	*ann 10/20/09*
ThinkVision L2251x Wide 22" Monitor	2578HB6	*ann 10/20/09*
ThinkVision L2321x Wide 23" Monitor	4014HB6	*ann 06/10/10*
ThinkVision L2440p Wide 24" Monitor	4420HB2	*ann 09/17/08*

More information at **www.lenovo.com/thinkvision**

Monitor accessories[46]

ThinkVision USB Soundbar	40Y7616	*ann 08/23/05*
ThinkVision Soundbar	45K1263	*ann 09/16/08*
Kensington® MicroSaver® Cable Lock	73P2582	*ann 12/29/03*
Kensington Twin Head Cable Lock	45K1620	*ann 09/30/08*

[46] Compatible on selected Lenovo and ThinkVision monitors.

More information at **www.lenovo.com/support/monitoraccessories**

Graphics

DisplayPort to Single-link DVI-D Cable[50]	45J7915	*ann 08/05/08*
ATI™ FirePro™ 256MB V3700	51J0509	*ann 03/31/09*
ATI FirePro 512MB V5700	51J0510	*ann 03/31/09*
ATI FirePro 1GB V7750	51J0511	*ann 03/31/09*
NVIDIA® Quadro® 256MB NVS 290	43R1765	*ann 12/18/07*
NVIDIA Quadro 256MB NVS 295	45K1669	*ann 04/21/09*
NVIDIA Quadro 512MB NVS 450	57Y4398	*ann 01/19/10*
NVIDIA Quadro 256MB FX 380	45K1670	*ann 03/31/09*
NVIDIA Quadro 512MB FX 580	45K1671	*ann 03/31/09*
NVIDIA Quadro 768MB FX 1800	45K1672	*ann 03/31/09*
NVIDIA Quadro 1GB FX 3800	45K1673	*ann 04/21/09*
NVIDIA Quadro 1.5GB FX 4800	45K1674	*ann 03/31/09*

[50] Attaches to selected DisplayPort graphics cards.

D20:

NVIDIA SLI Connector with FX 4800	55Y8963	*ann 03/31/09*

More information at **www.lenovo.com/support/graphiccards**

Security

Kensington MicroSaver Cable Lock	73P2582	*ann 12/29/03*
Kensington Twin Head Cable Lock	45K1620	*ann 09/30/08*
Lenovo Security Cable Lock	57Y4303	*ann 08/24/10*
USB Gemplus GemPC Smart Card Reader	41N3040	*ann 02/21/06*

Rack mount accessories

D20:

ThinkStation D-Series Rail Kit	43R1964	*ann 03/11/08*
ThinkStation C-Series, D-Series Rail Kit	57Y4482	*ann 09/14/10*

For more information on ThinkStation accessories, please visit:

www.lenovo.com/support/accessories
www.lenovo.com/support/thinkstationaccessories
www.lenovo.com/support/security

Other accessories at **www.lenovo.com/accessories**

Accessories Guide pdf at **www.lenovo.com/accessoriesguide**

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ThinkStation® - ThinkPlus™ Services

Partial list of Lenovo® ThinkPlus Services[7] for ThinkStation workstations

For more information see:
http://www.lenovo.com/services_warranty/us/en/index.html

ThinkPlus service upgrade options

ThinkStation workstation with 3-year Onsite warranty

LOR = Lenovo Onsite Repair

4-year LOR 9x5 Next Business Day	43R8983
5-year LOR 9x5 Next Business Day	43R8987

ThinkPlus Priority Support for enterprise customers

- 9x5 next-business-day response Lenovo Onsite Repair
- 24x7 support with priority routing and advanced level technicians

ThinkStation workstation with 1-year Onsite warranty

3-year Priority Support	45J9080

ThinkStation workstation with 3-year Onsite warranty

3-year Priority Support	45J9081
4-year Priority Support	45J9082
5-year Priority Support	45J9083
3-year Priority Support 4-hour response	45J9084
4-year Priority Support 4-hour response	45J9085
5-year Priority Support 4-hour response	45J9086

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Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors.

Warranty: For a copy of applicable product warranties, write to: Warranty Information, 500 Park Offices Drive, RTP, NC, 27709, Attn: Dept ZPYA/B600. Lenovo makes no representation or warranty regarding third party products or services.

[1] **Limited warranty:** Support unrelated to a warranty issue may be subject to additional charges.

[2] **Hard drive:** GB = billion bytes, TB = trillion bytes. Accessible capacity is less.

[3] **Systems with limited onsite service** are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by Lenovo. Lenovo will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by Lenovo for onsite replacement. For a list of onsite replaceable parts, contact Lenovo. In the United States call 1-800-426-7378. Support unrelated to a warranty issue may be subject to additional charges.

[4] **SATA/SAS:** The system configuration supports the installation of either SATA or SAS disks. A configuration including both SATA and SAS disks is not supported.

[5] **Included software** may differ from its retail version (if available), and may not include user manuals or all program functionality. License agreements may apply.

[6] **Multi-Burner Plus** (part number 73P3305 or 73P3370) is a DVD±RW device that reads and writes to DVD-RAM, DVD-R, DVD-RW, DVD+R, and DVD+RW. It also reads and writes to CD-R and CD-RW media. 73P3370 also writes to DVD+R double layer media.

[7] **ThinkPlus Services:** These services are available for machines normally used for business, professional, or trade purposes, rather than personal, family, or household purposes. Not all machine types and models are covered. Service period begins with the equipment date of purchase. Service must be purchased during the original limited product warranty period. Service levels are response time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), a part will be express shipped to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. P&L means parts and labor. P/U means pick-up. See ThinkPlus terms and conditions for complete details and restrictions.

[8] **RAID:** Supported RAID levels for a system will vary from the stated capabilities of the RAID controller due to dependencies on the number and capacity of physical disks in the system and on customer requirements for performance, fault tolerance, or data redundancy.
RAID levels and requirements:
- *RAID 0 (striping)* provides increased performance by writing data across multiple drives.
- *RAID 1 (mirroring)* provides fault tolerance by writing the data on two drives.
- *RAID 5 (striping with parity)* uses distributed parity data to provide fault tolerance more efficiently than RAID 1. Requires three or more drives.
- *RAID 10 (or RAID 1+0)* combines RAID 1 and RAID 0 to create a stripe of mirrors that is fault tolerant while offering increased performance. Requires four drives.

[9] **International Warranty Service** is available in any country in which this product is sold and serviced. Service delivery methods and parts availability vary by country, may be different from that in the country of purchase, and are subject to change without notice. Fees and restrictions may apply in some countries.

[14] **Response times may vary.** May exclude some holidays. Telephone support may be subject to additional charges.

[20] **Operating System:** Level of support varies by operating system. Operating systems not preloaded on the system may not provide full feature functionality. Refer to lenovo.com/pc/support and enter your machine type and model number for more information.

ThinkStation

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